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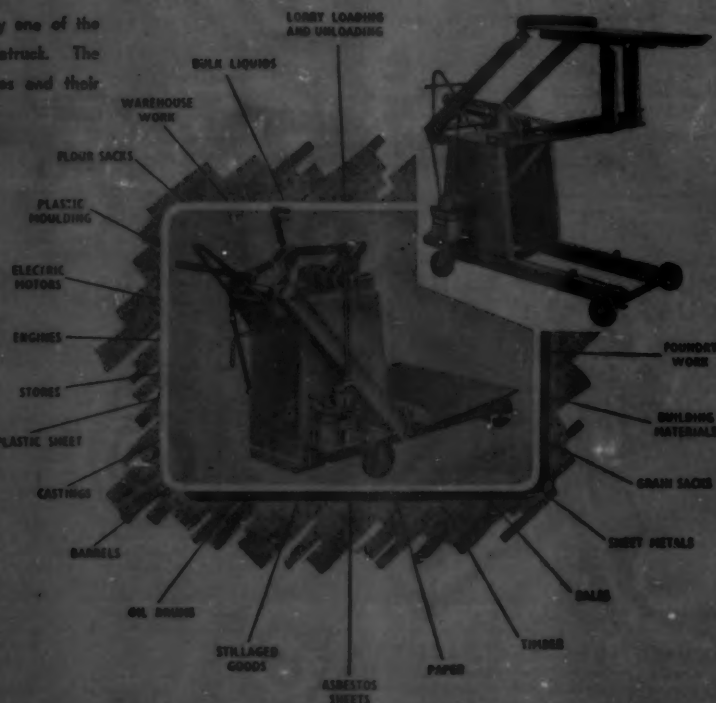
Saturday, February 24, 1951.

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AFTER BUSINESS HOURS

This Amazing World

(By John Dexter.)

The views expressed in articles published in this section are those of the contributors and not necessarily those of "The Australasian Manufacturer." They are selected for their interest value, whether controversial or not, and the comments of readers on the subject discussed are always welcomed by the Editor.

Roses may not grow on thorns, nor figs on thistles—as the poet reminds us. But waiters are firmly convinced that money grows on trays. Their air of expectant anticipation could connote nothing else.

Fellow of our acquaintance was interviewed recently about a friend of his who was applying for a position in the government. Winding up the long interrogation, the agent asked: "And do you consider him well qualified for the job?"

"Depends. What's the job?"
"Sorry," said the man. "I'm not at liberty to reveal that. Confidential, you know."—"Pathfinder".

Speaking of money reminds us of an admirable saying of Samuel Johnson's. "Marriages would in general," he declared, "be as happy, and often more so, if they were all made by the Lord Chancellor".

Vision reaches a higher standard in man than in any other creature. The centre in the prefrontal area is enlarged, and the very minute movements of the eyes, as they follow the outline of an object, are so true that we get a perfectly clear and exact picture of every detail.

Innumerable myths and tales are interwoven with the beauty of the rainbow. The Greeks, for example, who translated the forces of Nature into figures of gods and goddesses, invented a special diety for the rainbow, Iris, a diety whose particular job was to form a connection between heaven and earth. Her name, by the way, has been preserved as part of the eye and in the word "iridescent", that is, showing rainbow colours.

Human beings are growing taller but they're still up to their necks in trouble.—"Chicago Sun-Times".

"What is the difference between capital and labour?" Willie asked his father.

"Well, son," his father answered, "The money you lend represents capital; getting it back represents labour."—"Watchman-Examiner".

Iris is the envoy-goddess female counterpart to Hermes and, like him, has wings upon her feet. The rainbow is her means of communication, for she glides along its arc to deliver her messages. Homer, in his "Iliad", calls her "the various goddess of the showery law".

After her visit to the United States last year, Storm Jameson, the famous English novelist, had this to say of New York:—"It is an extraordinary thing, but New York has become for the world something more than a city. It stands for all that Europe once had. It stands for warmth and a rich physical life, for elegance and energy, for the unexpected, for magnificent generosity, for the future. Its charm and its astonishing energy begin with the people themselves. Skyscrapers spring from their restless, lively mind; like the fountains a child makes when he hits the water in play. They laugh easily. Their voices sing: 'Good-bye. Come again'. It hovers on the edge of song."

Who would dare to say we are not becoming more splendidly humanitarian? Here's a typical case in point. When the British Parliament was asked to vote £500,000 for European relief at the close of World War I, Chamberlain asked why poor old England should be the Mrs. Jellyb among the nations, and the matter was dropped forthwith. At the end of World War II, the same Parliament, without demur, voted £160,000,000 as Britain's contribution to UNRRA.

It is said that man will work 8 hours for pay, 10 hours a day for a good boss, but 24 hours a day for a cause.—"Electrical World".

One of the greatest benefits fire conferred on primitive man was the stimulus it gave to family and

social life. Life in the open, wandering and hunting from day to day, makes men unsociable, but how readily people will collect round a sheltered fire on a chilly night. Even language must have received an important impetus. The long dark nights and cold wintry days, when there was little to do but gather round the fire, encouraged conversation and the exchange of ideas.

It is recorded that British radar operators in the last war encountered serious difficulties with radio waves reflected by sea and shore birds, some of which were actually detected as far away as sixty miles. The chief offenders were large gulls which, when flying alone offshore near the surface of the water, on occasion produced an echo of the same strength as that of a fast-moving vessel at a greater distance. Indeed, on one occasion, they were responsible for an invasion alarm!

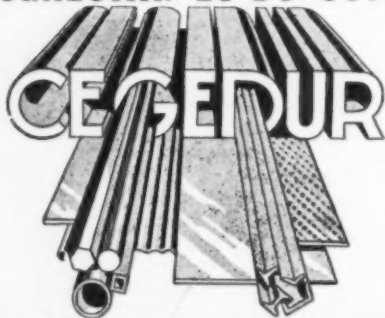
After viewing an exhibition of Modern Art in any of our National Galleries, one can readily understand how a drawing of Stravinsky by Picasso, on its way to an exhibition in the Near East, was held up for two days by customs officials in the Balkans, said officials insisting that it was a plan of their frontier fortifications!

In this era of plagues, it is small comfort to learn that Nature has actually produced one thousand different kinds of fleas. This, despite the fact that certain species of him are guilty of slaying mankind wholesale. It has been estimated, for example, that in India between 1896 and 1911, fleas were responsible for the deaths of seven million people.

As a jumper, the flea stands alone. Experts say he can take a leap equal to two hundred times his own length. That this puts the greatest human jumper completely in the shade is proved by the fact that a six-foot man, to equal the same record, would have to cover one thousand two hundred feet in a single leap.

(Turn to page 34.)

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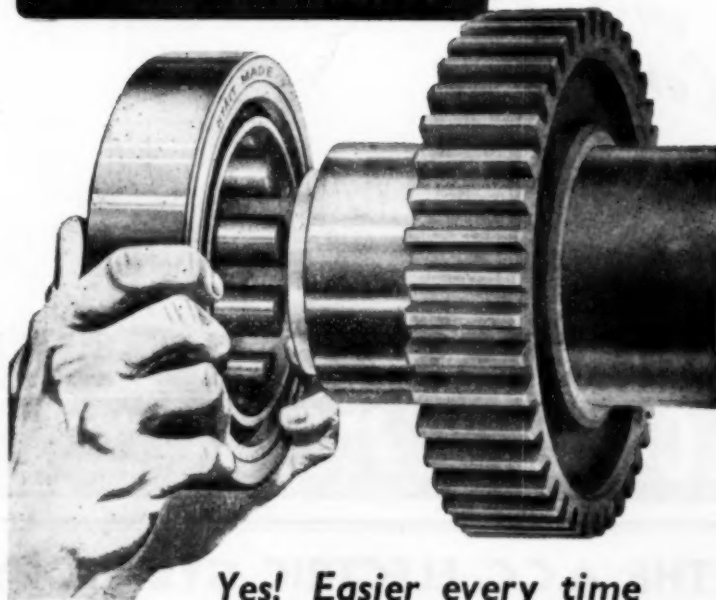
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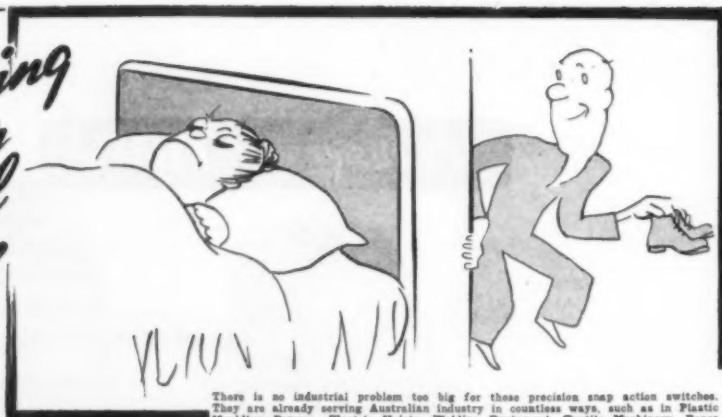


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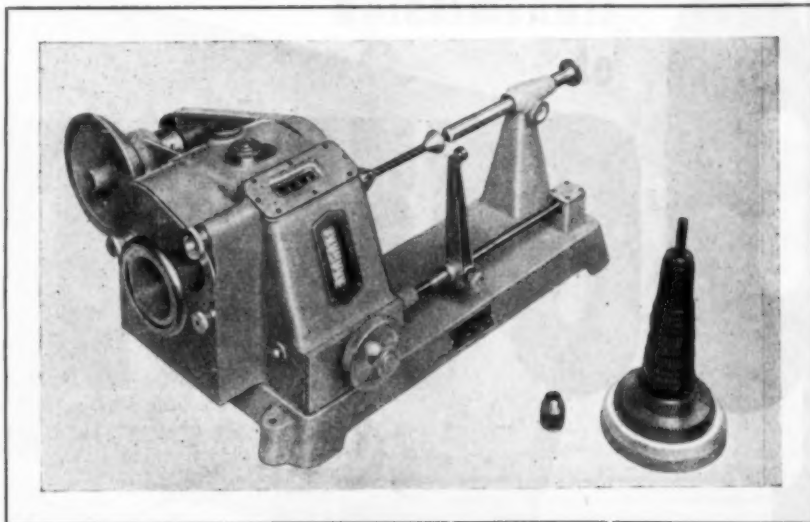
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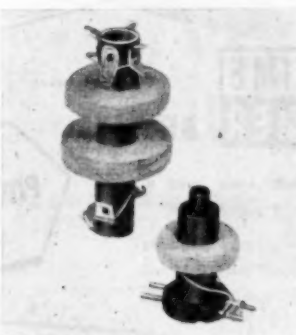
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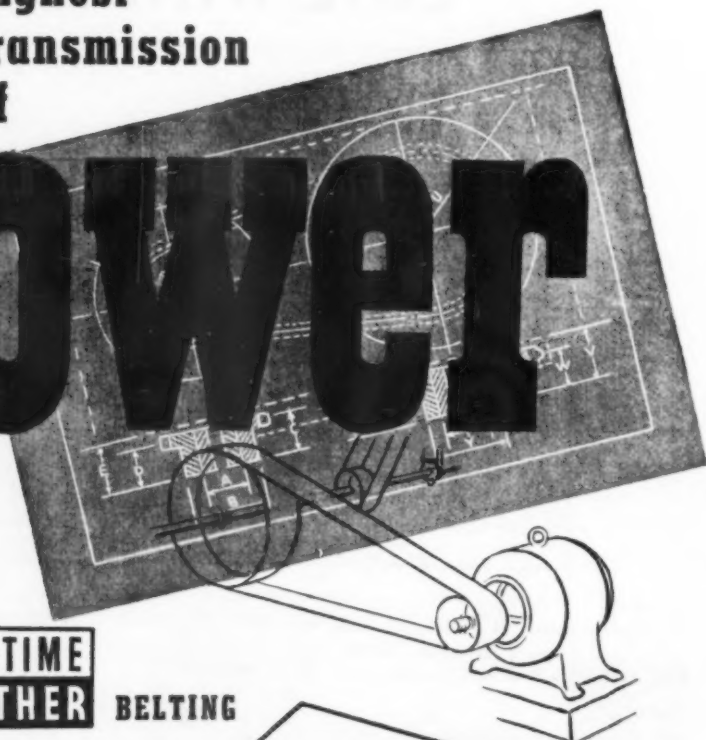
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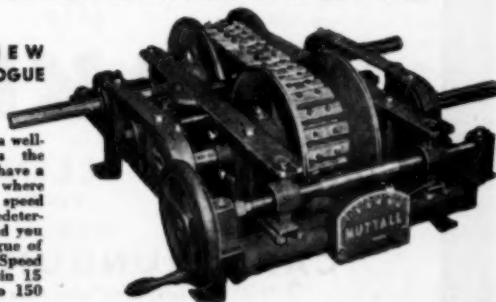
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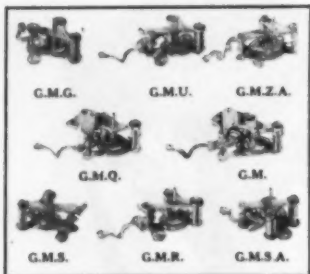
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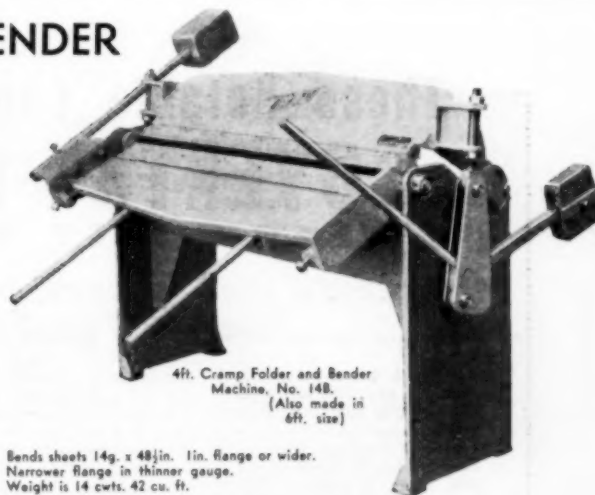
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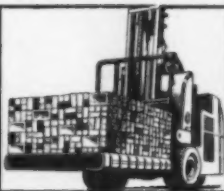
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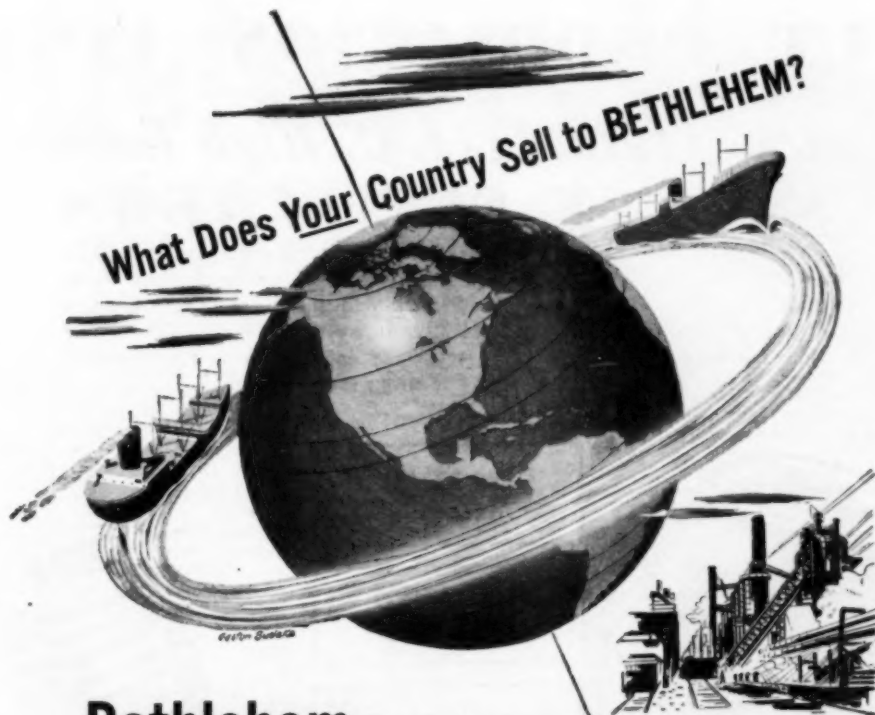
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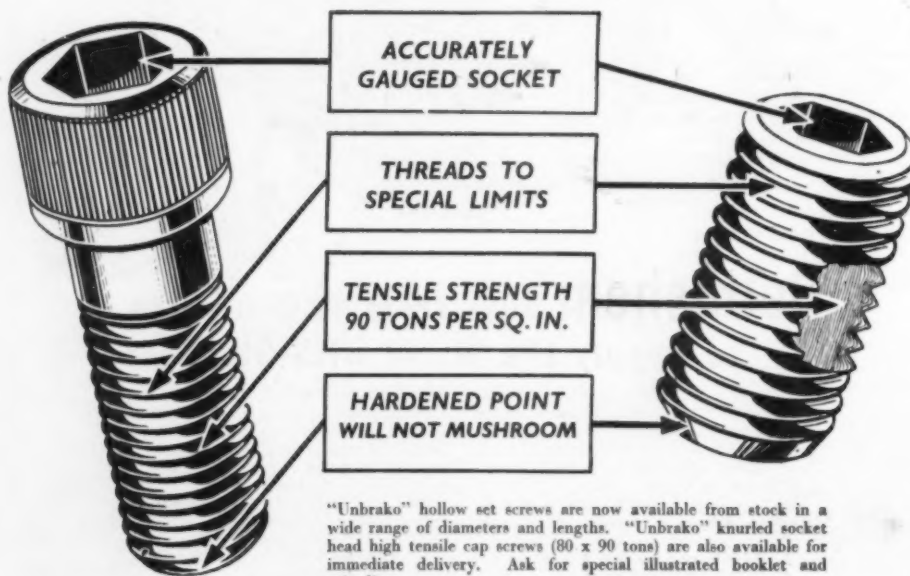
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PAGE NINETEEN

FEBRUARY 24, 1951.



Labour and Material Resources

Their Efficient Utilisation an Urgent Necessity

"The existence of danger points in the world and the grave deficiencies in Western Europe's defences impose on all the Democratic countries a sort of semi-wartime economy. We must aim at the highest measure of defence preparation consistent with the maximum needs of the country for increased production and increased development. Above all, it is elementary that we cannot put ourselves on a semi-wartime footing or make that measure of defence preparation we need, if we are going to waste our manpower or material resources. At present we are wasting both. . . . It is hard to believe that business and productive enterprise is as productive as it might be. All engaged have a duty to this country to put forward every possible effort for efficiency. I believe that nothing less than our best will do."—The Prime Minister, Mr. R. G. Menzies, in his first Press interview on his recent return to Australia from abroad.

THE PRIME MINISTER'S call to national effort must meet with the same spirited response as ever has been given by Australia when danger even remotely threatened. Her people, that is to say, must think, act, work, and prepare in unity.

Primary consideration must be the most effective and the most efficient utilisation of her manpower and material resources. Any frittering away of either in to-day's special circumstances is tantamount to national suicide.

At the earliest possible moment, therefore, the Prime Minister must take both management and labour into his confidence, advising them of the course of action he proposes to pursue in the national interest, and inviting their co-operation in the implementation of the programme. In this great task he will need all the skill, all the far-sightedness, all the experience, and all the loyalty he can muster. Given these, he can face—and successfully execute—the grave tasks confronting him.

Unquestionably one of the most serious of the many serious problems calling for effective solution is the manpower shortage. This is a problem with which many of the great industrial nations abroad are to-day grappling. And it seems highly probable that its solution will demand from Australia, as it already has demanded from other nations, the adoption of unorthodox tactics.

It has been suggested, for example, that if Britain is to accelerate her defence production to a tempo commensurate with her urgent needs she may be forced to call on both her men and women pensioners. For without their services she may be unable to build her labour force up to its requisite strength.

Action of this character immediately raises the significant query: Can the nations of to-day afford to waste the productive capacity of men and women who, though no longer young, still have the capacity and the desire to continue an active working life? It was pointed out in the case of British workers that rising health standards have prolonged their working capacity. How infinitely more true is this of Australian workers enjoying as they do as high a living standard as the world has to offer and living under the sunny skies that spell health and vigour?

One thing is certain.

Australia cannot afford to lose, by retirement at 65, the executive ability of the men who have worked in many of her progressive enterprises and undertakings.

Means must be devised whereby this capacity for work can continue to be exercised in the interests of national development. It is a truism to assert that many men of 65 are frequently at the very peak of their achievements. They are rich in experience, in ideas, and in attainments. The majority of them, moreover, are not only willing, but extremely anxious to continue active participation in their special fields. And a way must be discovered of acceding to that desire.

True, precautionary action must be taken to ensure adequate openings for the younger men: within an organisation. Nothing must be done which would be likely to dampen their enthusiasm or set limits to their ambitions. This point, however, can be well taken care of and still permit an efficient utilisation of the valuable services capable of being rendered by the older experienced men.

Australia, with her 125,500 more jobs than workers, surely cannot

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afford the extravagance of dispensing with the services of numbers of her most expert workers merely because they have reached an age which earlier generations had deemed ripe for retirement.

The Commonwealth's present-day need for the most scientific, the most thorough-going, and the most efficient utilisation of its manpower

and material resources, calls for the scrapping of old ideas and old prejudices and the formulation of new plans adapted to the circumstances and the conditions of this year of grace, 1951.

Will courage, vision, and wise leadership devise the new methods to meet the new needs?

Pithy Jottings of Industry and Industrialists

GEO. KENT LTD. DIRECTOR TO VISIT AUSTRALIA.

Mr. Rodney Kent, a director of George Kent Ltd., Luton, England, and its Victorian subsidiary, is expected to arrive in Melbourne on 2nd April. He will visit his company's agents in the various States and New Zealand.

STEEL SHUTTERING EXPERT HERE.

On a short visit to Australia at the moment is Mr. S. T. Barnett, steel shuttering and form expert of Blaw Knox Ltd., London. Here to advise on shuttering problems generally, Mr. Barnett will be visiting New South Wales, Queensland and Victoria, and may be contacted through the Blaw Knox agents for these States—Messrs. Norton, Tootill & Company Pty. Ltd., of Sydney, Wollongong, Brisbane and Melbourne.

ADELAIDE'S FIRST PLASTICS DISPLAY.

Use of plastics was greatly increasing the number of models for museum exhibition, a spokesman for the Adelaide Museum said at a display by the S.A. section of the Plastics Institute of Australia recently.

The display, the first held in Adelaide, included plastic water piping, "corrugated" plastic, which lets the light through, baths, wash troughs, and a plastic pump for pumping acids.

BUSINESS TRIPS ABROAD.

Mr. William H. Rickard, Managing Director of Jones & Rickard Pty. Ltd., electrical and mechanical engineers and specialists in dynamic balancing, of Elizabeth Street, Sydney, left on the "Orcaades" this month on an 8 months' trip abroad on business and pleasure. He will visit the

United Kingdom, Sweden, Switzerland and United States of America.

Mr. K. G. Healing, chairman of directors of A. G. Healing Ltd., left by plane last month for a four months' business trip to America and England. He will study the latest developments in radio, electrical, cycle and auto-motive industries abroad.

VICTORIAN SALES MANAGER —LEWIS BERGER & SONS.

Mr. R. S. Searle has been appointed general Victorian and Tasmanian sales manager of Lewis Berger and Sons (Aust.) Pty. Ltd., paint manufacturers, etc.

Formerly Victorian sales manager for Berger's and the Rogers Paint and Varnish Co., Mr. Searle joined the Victorian Co. on his release from the R.A.F. in 1947. The appointment of Mr. Searle, who has had considerable experience in the paint industry both here and abroad, has been necessitated by the rapid growth of the company in the past few years.

CAPITAL ISSUES CONTROL.

The Federal Government announced during the past week the type of industry to which it is prepared to give consent for new capital issues. These come under two main categories, designated by the National Security Resources Board "basic products" and "vital to defence", the first covering the metals, building materials, and mining industries, and the second including castings and forgings, power-generating equipment, railway rolling stock, tractors and certain types of engines, earth-moving equipment, motor and aircraft parts, tools and gauges of defence importance, chemicals and fertilisers, petrol, and selected plastics.

This list is, of course, only

suggestive of the class of product deemed essential to defence preparedness. Industrialists are advised to secure from official sources full details of the lines affected.

SILVERTON TRAMWAY MAN'S TRIP.

Mr. T. C. Gun, general manager of the Silverton Tramway Company, left recently on the first stage of a trip to Britain to inspect railway systems. His duties will be taken over by Mr. A. G. Phillips.

NEW FACTORY FOR DIE CASTERS LTD.

Die Casters Ltd. are erecting at Donville, Victoria, a new modern factory, major portion of the plant and equipment for which has already been purchased. This new plant has been designed chiefly to handle the extrusion of plastic raw materials and to produce increasing quantities of DC equipment for spray irrigation. According to the directors, this DC system of spray irrigation has many economic and labour-saving advantages over earlier systems, its merit resting on the use of

plastic piping, etc., for greater economy and mobility and on a new type of spray-head which ensures marked economy in the distribution of water. Power used for the operation of the new system is claimed to be a mere fraction of the horse-power previously required. The organisation is also developing plastic packaging coverings whose range extends from air-tight packs for aircraft nuts and bolts to large food containers, such as tea chests and sheeting used in the home for packing foodstuffs for home refrigeration.

DIVERSION OF LABOUR FROM LUXURY TRADES.

The Premier of Victoria, Mr. McDonald, announced recently that State methods of diverting labour and materials from luxury into essential industries by price control is engaging the attention of Prices authorities. "Manufacturers of luxury goods, sold at luxury prices," he said, "have greatly added to Australia's task of producing the necessities of life. These industries command fantastic prices for their goods. Therefore they can pay wages far beyond the capacity of other industries."

POSITION WANTED

ADMINISTRATIVE EXPERIENCE

New Zealander, 40, holding £2,000 p.a. executive post international Organisation, London, seeks administrative position from April, 1951. Pre-war in sports and printing businesses—post-war constructing and operating DP camps. Good organiser, wide general administrative experience, sound common sense, small capital, own car. Write to: "ADMINISTRATIVE," c/o "The Australasian Manufacturer," Box 1687, G.P.O., Sydney.

tries, and particularly of primary producers. The position has been reached where the manufacturers of luxuries are trying to outbid each other for the labour available." Industrialists will watch these developments with interest.

U.S. INDUSTRIALISTS INTERESTED IN AUSTRALIA.

Mr. Baron D. Snider, an Australian who has recently returned to his homeland after residing fifteen years in the United States, assured his fellow-countrymen on arrival that every American today is thinking of Australia in terms of some importance to the United States. "Increasing attention is being given by United States industrialists to expansion in Australia, but there are many things Australia must do before such a course can be considered. The first is to abolish double taxation—a definite retarding factor to American thinking. The second is to establish a central single agency to give American industrialists all the answers to their questions." Mr. Snider has returned to Melbourne to take up the post of Director of the Training Within Industry Programme for the Australian Institute of Management. For the answering of America's questions, Mr. Snider envisages a Commonwealth bureau, the officers of which shall be trained in all the appropriate departments so that a definite answer may be given to all business questions.

AIR-CONDITIONING OF FACTORIES.

What was tantamount to a plea for the air-conditioning of factories was made recently by Professor Wright, Professor of Physiology at the University of Melbourne. "The drop in factory production during heat waves is so great," he said, "that air-conditioning plants would quickly pay for themselves." He went on to point out that experts have shown that factory workers produce most and are happiest in a temperature between 60 and 70 degrees. Small wonder, therefore, that production drops and tempers rise when the mercury soars to close on the century. As high temperatures are the order of the summer day in all the Australian capital cities and in many of the country areas where factories are functioning, the question of air-conditioning should receive earnest consideration by humane and efficient management.

TO MAKE LABOUR SAVING DEVICES.

A new factory is to be erected in Sydney by Acrow (Engineers) Ltd., who will make labour-saving devices for the building industry. The factory, which will employ about 200 workers, will commence production of materials, including formwork for cement foundations in about six months. Mr. J. Elliott, general manager of the company, is in Sydney to complete arrangements. Head office is at 33 Catherine Place, Buckingham Gate, London, S.W.1.

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Around & About the FACTORY



A digest of new factory and plant construction, additions, alterations and improvements, and operating news of Australian industry.

A Giant That Makes Bread Hygienically

Engineering Design of Immense Interest

A huge automatic bread-making machine, which recently made its appearance in a large bakery business in Melbourne, has attracted a good deal of attention from engineers, and other industrially interested people.

Although the chief interest in the machine is confined to bakers, biscuit manufacturers and allied trades, the design and purpose of

of Carlton, Victoria. The travelling oven has an over-all measurement of 59 ft. with a baking chamber measuring 50 ft. long and 7 ft. 6 ins. wide.

The object of the unit is to turn out large quantities of first quality bread of uniform quality as well as with speed and a minimum of human handling. In this respect much has been accomplished and

device used in modern baking equipment. Only three times during its passage through the unit does an operator's hand touch the bread. After completion of the first "proof", the dough passes through to a final moulder from where a conveyor takes the loaves beneath a special oiling attachment which dispenses with greasing of tins. The loaves are then picked up by another conveyor to an elevated oven "room", preparatory to entering a second "proofer". Final moulding is done by a special machine which causes no deterioration of loaf texture. Special construction of the second "proofer" makes it suitable for working in conjunction with the travelling oven. It is fitted with a speed control at both the loading and unloading ends so the operator feeding the "proofer" can vary the speed to suit the supply of dough pieces or, the operator in charge of feeding the oven, can adjust the intake to suit the oven.

The oven is fired by high pressure gas from multiple burners. An even and regulated pressure of gas is obtained by variable speed control. Ample lighting and inspection doors on the oven enable an easy and constant check to be made of the bread as it passes through the baking chamber. The main drive for the oven is of variable speed and there is an auxiliary attachment for use should there be a power failure.

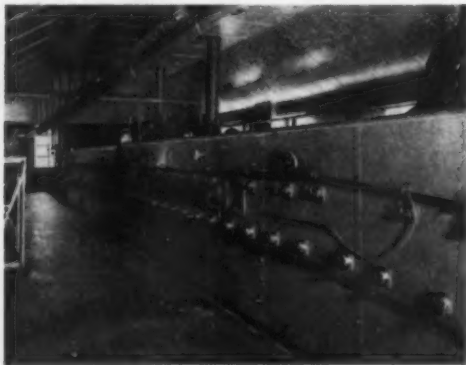
Another highlight is the employment of a "magic eye". This is an

electronic unit which keeps an accurate tally of the loaves passing out of the first "proof" and a photo-electric selector control which is combined in an ingenious "two in one" device. This automatically couples the two 2-lb. loaves and feeds them directly into the final moulder.

Small & Shattell Pty. Ltd. has been established for more than 60 years and in that period has made specially designed baking machinery for manufacturers all over the Commonwealth. For instance, it recently made a large biscuit-making machine for Willetta Pty. Ltd., of Perth. The firm's designed machines have places in biscuit factories in all the capital cities as well as New Zealand, South Africa and India. But it has standard equipment such as biscuit-cutting machines and dough brakes which are widely used.

In this, there is a strong call for precision engineering. For example, the tolerance in the biscuit-cutting "dies" is about one-1,000th part of an inch. The machines operate at the rate of 100 vertical strokes to the minute and can turn out an enormous number of biscuits.

None of the ovens made by the firm are electrically fired. All are for use of gas, coal or other fuel. The company employs more than 50 skilled engineers and other craftsmen but, in common with other industrial organisations, is a victim of the epidemic of shortage of materials and manpower.



A 50 ft. x 7 ft. 6 in. baking chamber is a feature of this bread-making machine.

the mechanical process is of interest also to engineers, designers and draftsmen. So many novel and efficient features have been incorporated in it that it has provided a pivot of attention to those engaged in other industrial undertakings.

Its appearance comes at a time when public opinion has been exercised by efforts of both the Victorian and other State Governments and bread manufacturers to produce both a uniform loaf and bread of the highest protein content.

The machine was made by Small & Shattell Pty. Ltd., of 41 Johnston Street, Fitzroy, Victoria, for use by Owens & Dixon Pty. Ltd., bakers,

the huge contrivance can turn out 11 tons of bread in one hour. By adjustment of a speed apparatus, baking time can be regulated from 20 minutes to more than an hour.

One tribute to the machine and its makers is that from the initial operation there has not been one burnt or spoiled loaf.

The basic principle behind the manufacture of the equipment was to eliminate the handling of dough as much as possible. This has been attained by an ingenious arrangement whereby an automatic elevator, empties the dough into a hopper, from where it passes through a divider and to the exit from the massive travelling oven. The plant embodies every known mechanical

Contractors' Field Pocket Book

Hints on "Materials Handling"

British Standard Machinery Co. Ltd., Mascot, N.S.W., are maintaining the flow of technical publications which they publish for the benefit of all concerned with the use of earth-moving and industrial equipment.

Latest to reach our bookshelf is the 1951 edition of their "Field Pocket Book", a handbook for contractors, engineers, saw millers, architects and many others. It contains advice regarding the correct

equipment for the job in hand, with safe hourly capacities for each item. There are tables containing figures comparing scoops against dozers, showing average yardage with allowances made for up and down grades, angle dozing and so on.

Manufacturers should find much to interest them in the articles on the drawbar power to shift loads, and drawbar power requirements

(Turn to page 34.)

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(Continued from page 22.)
on grades. There is also a comprehensive table of nearly 200 types of timber from Alder to Yortchuk, showing degree of hardness, weight per cub. ft., weight per 100 sup. ft., sup. ft. to the ton, and percentage of green moisture content—the figures are repeated for dry weight.

The conversion tables showing weights and measures for commodities are so complete as to compare even garbage wet with garbage dry, concrete pipes, asbestos sheets. The book concludes with some advice on the working of concrete including the use of vibrators.

The Field Pocket Book has been published yearly since 1947 and each edition sees some new data added. The current issue contains new data on timber. Advertising is restricted to objective specifications of the firm's range of equipment.

This is not the only publication which is free to those who apply to the firm's advertising manager. Others include "Tank sinking", a comprehensive booklet setting out various methods of sinking dams; "Modern Dirt Moving Methods"; and "Dozer Operation", this last,

according to Mr. D. M. Barrie, British Standard Machinery's advertising manager, the first of its kind published in Australia.

In addition to these books, the Britstand organisation publishes a bi-monthly magazine called "Earth-moving", which gathers stories of dirt-moving jobs from all over Australia.

Another publication recently to hand from the Company's Industrial Equipment Section from them is a handbook called "Materials Handling with Fork Lift Trucks and Industrial Tractors". This begins by telling you how to teach your fork lift driver to handle his vehicle and ends by advising on the most economical way of setting out a store. Its 76 pages contain a wealth of information on stacking, the correct placing of pallet loads in the space available, and the best type of pallet to be used for a particular product.

Good and bad fork lift utilisation are fully dealt with and all possible kinds of stacking methods are set out. One chapter deals with storage by three dimensional planning and even goes to the length of stating the correct method of stacking bags for maximum stack

height:—"The bag should be dropped by two men lifting from all four corners. It should be given a substantial drop so that it lands squarely in position."

The Industrial Equipment Section also has its bi-monthly magazine, "Materials Handling", which

reports the material handling methods of many Australian factories in all States. These, and all other publications of the firm, may be had free by addressing a request to the Advertising Manager, British Standard Machinery Co. Ltd., 54 Gardeners Rd., Mascot, N.S.W.

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The principals would consider up to £750,000 for purchasing an existing factory operating at a profit in

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Prompt reply is necessary, as English Principal will be visiting Australia to inspect within next two weeks.

He Made His Own Lapping Machine

"Flat lapping" is an engineering term that has strong application to Gravenor Products, 17 Verity Street, Richmond, Victoria, because it is its chief activity.

And in the process of that activity the concern has gained a wide reputation. It is, perhaps, somewhat unique in the industrial world because it possesses a process entirely of its own. And in gaining that process there hangs an intriguing tale.

In 1946, the driving power of the firm, Mr. H. A. Bean, was engaged on the engineering side of refrigeration work. He constantly came in contact with the difficulties experienced by engineers in lapping the valve plates. It took, on the average, about eight hours of irksome hand grinding and smoothing to get the

degree of accuracy so essential for the valves.

So Mr. Bean set to work and designed a machine that could do the lapping to a uniformity and to a microscopic degree of accuracy that the human hand could not accomplish. For three and a half years, working in his spare time, he concentrated on his machine and, after many trials and errors, was satisfied he had found the answer to the problem.

And, having made the machine he established the company. So successful was the lapping machine that we understood the company has now a large percentage of the steel lapping branch of the industry and turns out valves for refrigeration and all kinds of industries using valves, in an expansive range up to 11 in. x 6 in. Operated by a series of rotating

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and osculating discs and using various grinding pastes, the machine can lap steel to the minutest requirement—even down to one two-millionth part of an inch.

But Mr. Bean describes the company as "general engineers."

His machine is but a part of the equipment that can handle any work in the engineering field. But it is certainly a tribute to his genius and skill and yet another emphasis on the frequently-repeated fact that the "Australian engineer has few equals in the world."

Galvanising Sheet Iron Products

Hot Work But Good Pay

Mr. W. Brown, proprietor of X.L. Galvanising Works, Bourke Road, Alexandria, N.S.W., is a specialist in galvanising sheet iron products.

His workshop is kept so busy that he is constantly on the move joining his employees in the effort to speed up production. This interview was obtained jogging alongside Mr. Brown as he hurried, carrying goods from the end of the production line to the stack of finished articles.

The X.L. Galvanising Works sub-contracts for the galvanising of goods made from sheet iron—garbage cans, buckets, dippers, down-piping, guttering and so on. The business was established 2 years ago to meet a heavy demand for this type of work and the demand

has since increased rather than diminished.

This factory is a proof of the statement that Australia offers incomparable opportunities to the small business man. The works consists of a big yard in one corner on which has been erected an open shed to cover the sulphuric acid bath and furnace-heated, galvanising dip. It employs about ten men, most of whom have been with the firm since the beginning. The formula for overcoming labour difficulties as given by Mr. Brown:—"Good pay!"

Sub-contracting, as carried out by this workshop, is becoming firmly established as part of Australia's industrial pattern. Labour difficulties are probably the basic reason why large manufacturers find it more convenient and apparently more economical to farm out work to small sub-contractors.

The men working on the galvanising dip do so under quite unpleasant conditions. It is unbearably hot near the furnace, yet there is practically no labour turn-over because the pay is right.

The large manufacturer is not always able to pay the necessary margin to keep men at an unpleasant job. The working conditions, lunch-rooms, showers and staff amenities are usually superior at large factories but the employer-worker relationship is more remote and concessions cannot be made to one section of the works without breeding discontent in another.

The X.L. Galvanising Works can cope with getting your galvanising work done in a matter of ten days—if existing orders allow. The plant is usually working to maximum capacity.



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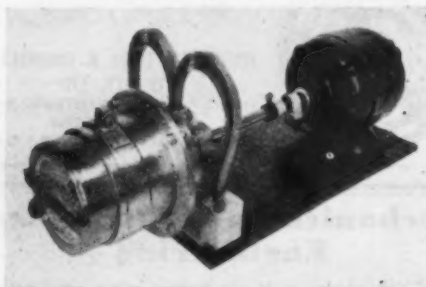
YOU WANT TO KNOW . . . and the editors will gladly tell you . . . more about the inventions, materials, and processes mentioned on this page. Write to Box 1687, G.P.O., SYDNEY, enclosing a stamped, self-addressed envelope.

Vibratory Ball Mill for More Efficient Grinding

A vibratory ball mill recently developed rapidly and completely grinds cotton into particles a few microns in length with little or no oxidation change or contamination of the cellulose. Grinding takes place as 3,700 steel balls, colliding over 100,000 times per second, pulverize the material caught between them. As the new mill produces a more uniform powder and

vented from settling to the bottom of the jar, and uniform grinding is obtained.

Motion of the jar is produced by means of horizontal shaft connected at one end, through a flexible coupling, to a 0.25 h.p. motor and at the other end to an eccentric weight. The weight, rotating at a speed of 1,800 r.p.m., drives the weight housing in a



This vibratory ball mill is expected to prove useful in the grinding and blending of materials. Grinding takes place between the colliding steel balls in the jar at left.

is more efficient and easier to operate than previous devices of this kind, it is expected to find extensive application in the grinding and blending of a variety of substances such as pigments, ceramic materials, metal powders, resins, and plant and animal tissues.

In the mill, a cylindrical jar suspended by leaf springs and containing steel balls in contact with the material to be ground is swung through a circular path. This excites the steel balls, causing the numerous collisions that grind the materials in the jar. At the same time the jar rotates slowly about its axis. In this way, the material being ground is pre-

circular path that is confined within certain limits by the flexural resistance of the springs. The jar containing the sample is held in a cylindrical holder, which is attached to the weight housing by means of a greased slip ring. A small difference in diameter between the flange of the jar holder and the slip ring groove permits the holder with the clamped-in jar to be rolled around the groove circumference by centrifugal force. This rolling or rotation of the holder and jar, which takes place at a rate of about 4 r.p.m. in a direction opposite to that of the rotating weight, continually redistributes the material being ground.

In experiments, the mill reduced 5 grams of cotton in 30 minutes to particles 10 microns or less in major dimension. X-ray diffraction measurements showed that the cellulose was converted almost completely to the amorphous

form in this time. Except for the decrease in degree of polymerization which resulted from the cutting of the cellulose chains, there was no degradation of the cotton. Nor was the ash content increased. [2730].

Hydraulic Marking and Embossing Press

There has recently been developed the 150-ton hydraulic press, shown in the accompanying illustration, for marking and embossing operations. The daylight provided is 12 in., the width of the opening 12 in., and the distance between the frame plates 15 in.

While it is found in marking operations that a stroke of $\frac{1}{2}$ in. is usually sufficient for indenting processes, the machine shown has a stroke of $\frac{1}{2}$ in., which provides a reasonable amount of latitude for adjusting the tools and work. At the same time the opening is insufficient for the operator's fingers to be inserted. The simple construction of the press side plates lends itself to the provision of more or less daylight, according to requirements.

Tests have shown that when working with $\frac{1}{2}$ -in. stroke, and allowing 5 seconds for the operator to place the component in position, a speed of nearly 300 pieces per hour can be maintained. When working with a stroke of $\frac{1}{2}$ in. and allowing the same time for loading, the speed attained is 180 components per hour. A simple valve enables the load exerted by the press to be controlled to whatever value may be required for the particular operation. The control knob for this valve protrudes from the pump casing at the side of the press and is readily adjustable without spanners. Any load from zero to the maximum of 150 tons can be exerted.

The press is almost entirely of steel construction, having a rigid double-sided type frame, the parts being flame cut from $\frac{1}{2}$ -in. thick steel plate. Both the cylinder

block and ram are machined from solid steel forgings. The ram, which is bored 1 in. diameter, is guided in a phosphor-bronze bush and is prevented from rotating by a guide rod sliding in a bush. The ram is down-stroking and the circuit single-acting. A swash-plate



150-ton Hydraulic Marking and Embossing Press.

pump with seated valves, driven direct from an electric motor, delivers high-pressure oil through a simple control valve fitted with a "dead man's handle." As soon as the handle is released, the valve returns to the open position and two helical springs return the ram to its uppermost position.

The oil tank is fitted with an air cleaner, which serves to cover the filter opening, and a filter is provided in the suction line from

the tank to the pump. The whole of the motor and pumping unit, with tank, is enclosed within a sheet steel casing at the right-hand side of the press. The loading of 150 tons is obtained at 80 per cent. of full pump pressure. The total height of the press is 6 ft. 2½ in., and the floor space occupied is 5 ft. 6 in. by 18 in. [2731].

Automatic Packaging of Stockings

Some of the leading hosiery manufacturers overseas are introducing to their factories a new machine, which encloses and seals stockings in cellophane bags automatically.

The machine fulfils a twofold purpose, it helps in the labour shortage in the hosiery trade and also reduces the cost to manufacturers. Of attractive appearance with the working parts highly protected, a prototype has been in use in the works of a well known hosiery manufacturer and has proved convenient and popular to operate.

Damage to the stockings as they pass through the machine is prevented by ensuring that only a few highly polished parts come into contact with the stockings.

Although completely enclosed, lighting inside the transparent covers ensures a clear view of the machine in operation.

All the operations of the machine are controlled and in the event of faulty operation the machine immediately stops.

When in production the stockings are brought to the machine in the usual manner and the operator places them one pair at a time on a feed belt which moves forward intermittently. The bags are placed on edge in a renewable magazine and this in turn supplies the feed hopper of the machine as required. Arrangement has been made by automatic check that bags are not fed unless stockings have been fed.

The machine inserts the stockings into the bag, folds the top of the bag and secures it with a self-adhesive tape so as to produce a package of about 7 x 5 inches. This can be performed at the rate of 20 or 30 packages a minute according to the type of stocking being packed and the skill of the operator. The packets are then delivered in piles of six on a slow running belt.

Yet another point of interest is that the method of sealing can be arranged so that handling of stockings after being packed can be allowed for or prevented as required.

The speed of running can be pre-set so that when the machine has been stopped the pressing of the start button will cause it to rise automatically to the required speed without further manipulation, so

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SWIFT NEWSLETTER No. 80

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- | | |
|--------------------------------------|--|
| 1. Uniform action. | 5. Permanent action. |
| 2. No fire hazard. | 6. No special maintenance or replacement. |
| 3. Comfortable working conditions. | 7. Preferably no external power source or live electrical circuits near machine. |
| 4. No physical contact with product. | |

Apart from combating static by creation of high humidity or direct application of moisture, there are four systems of static control in common use—electric bars, gas bars, tinsel and the IONOTRON Static Eliminator.

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Detailed technical information is available from

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ensuring maximum production and minimum attention. The electrical control gear is built into the machine, the main panel being conveniently sited under the delivery table.

Many movements concerned with the handling of the bags require suction and this is provided by a pump with separate motor drive situated on the base of the machine. [2724].

Small Parts "Fast" — With Automatic Die Casting

Die casting has long been one of the best ways to fabricate zinc. And zinc is one of the easiest metals to die cast. It flows readily through the die, yet solidifies rapidly. Taking advantage of this, an overseas company has fast-

ejected. Only burnishing and plating remain.

Latest refinement is an "Inter-casting" technique which produces parts with movable elements—unbroken chains and working scissors—in a single operation. The technique involves movable die



In a continuous string, and freely movable, these chains spill out of intercasting machine. Snap rings for loose-leaf binders can also be made this way.

acting, completely automatic casting machines, an outgrowth of zipper-making equipment, that turn out as many as 350 parts a minute from a single-cavity die. Molten metal (and inserts, if required) is fed to dies automatically, and parts are trimmed and

sections and a continuously overlapping series of molten metal injections, allowing one section to solidify before the next is injected. All of this takes place in a fraction of a second—during a single die closing. [2723].

Leak Detector for Refrigeration Equipment

In any refrigeration system, whether it be a large installation on a refrigerated ship or the smallest domestic refrigerator, the loss of refrigerant through a comparatively small leak can soon render the entire equipment ineffective. When Freon or Methyl Chloride is used as refrigerant, one of the difficulties of servicing such systems has been to locate, quickly and accurately, small but nevertheless serious leaks.

With the introduction of the Type H Leak Detector, manufactured by a British firm, minute leaks can be rapidly detected. The instrument is highly sensitive to vapours of Halogen Compounds and gives both a visual and audible indication of a leak as small

as one at the rate of even less than one-fiftieth of an ounce (.50 of a gramme) per year.

In addition to the testing of refrigeration systems, the Leak Detector can be used for the pressure testing of tanks, pipes, joints and welds. The method is to pressurise the system with air carrying a small quantity of "tracer gas" such as Chloroform Vapour, Carbon Tetrachloride, Freon and so on. One advantage, of course, is that as soon as the required pressure is attained, testing for leaks can begin immediately—there is no waiting for long periods for water to seep through any minute holes, as in the conventional hydraulic method of testing. [2725].

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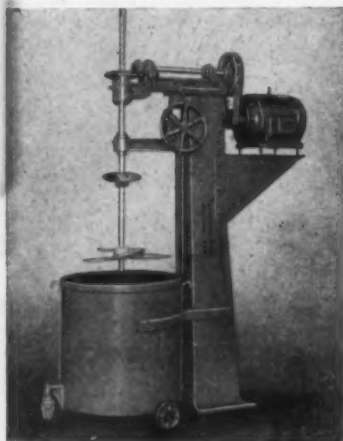
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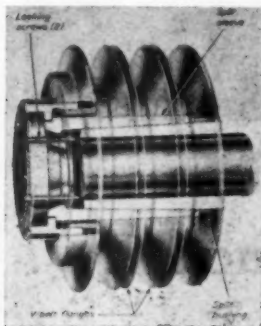
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Adjustable V-Belt Pulley Locks Solid

The adjustable diameter V-Belt sheave, illustrated, utilizes a tapered shaft bushing and a tapered sleeve to rigidly lock into a single "solid" sheave. The new pulley is designed to eliminate vibration, noise, and metal peening through a positive assembly in which no clearances are left between parts when the unit is locked and operating.



New pulley eliminates vibration and noise.

The split shaft bushing is tapered to adapt the sheave to undersize or oversize shafts. Quick break-away in dismounting and positive clamping action on the shaft are also claimed. Locking action is accomplished by the two locking screws shown in the illustration.

The split-taper sleeve provides the locking force to hold the flanges to the hub. When the bushing is pulled in tight to lock it on the shaft, the wedging action expands the taper sleeve against the flanges, making the entire unit a "solid" sheave.

With the unit loosened, pitch diameter adjustment is accomplished by turning the adjusting collar with a spanner wrench. This collar is connected by a RH thread to the outboard flange in each V-belt groove. The inside thread of the adjusting collar is LH, and ties to the inboard flange in each belt groove. Thus, turning the collar simultaneously moves all flanges to increase or decrease the pitch diameter of the sheave. V-belt alignment is maintained at all times.

The new double-taper, adjustable diameter is offered for severe drive conditions. It is available for most standard and a wide range of adjustable-diameter drives. [2690].

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(Above): The new "Production Centre" of Sargood Gardiner, Limited, at Dee Why, N.S.W. (Right): Guests at the official opening of the new "Centre." Sitting: Messrs. C. J. Bentley, Director; Herbert Taylor, Chairman of Directors; D. H. Sargood, Director; W. F. Horn, President Warringah Shire; and S. E. Hill, Production Manager. Standing at microphone: N.S.W. Minister for Secondary Industries and Building Materials, Hon. W. E. Dickson, M.L.C.

New Building Solves Production Problems

No Lack of Staff at Sargood Gardiner's Production Centre, Dee Why, N.S.W.

A newspaper advertisement for staff for Sargood Gardiner's new "Top Dog Men's Wear" Production Centre at Dee Why, N.S.W., brought 400 applicants, it was announced by the firm's director, Mr. C. J. Bentley. He was speaking at the official opening of the building held last month. Those who had inspected the premises could not have been surprised at Mr. Bentley's announcement.

The illustration on this page shows what a handsome building it is. The interior is equally pleasant and has every amenity and comfort for the people who will work there.

The architects, Spencer, Spencer and Bloomfield, made the most of the building site's imposing position. Harmonising with its surroundings the building fulfills the promise made to Warringah Shire Council by the firm's management, that the centre would be a building which would be a credit to the district.

LOCATED at the convergence of three main roads—the main Pittwater Road, which is the direct route to Palm Beach; the Harbord Road to Manly; and the Roseville Road, serving the North Shore and French's Forest areas—the new Sargood Gardiner factory is served by three bus routes. Such ease of transport offers every inducement to staff. That there is no lack of applicants in locations such as this, some distance from the city, is borne out by the response to one advertisement in contrast with the difficulty of obtaining any replies in the city.

This factor is well known by the Secondary Industries Division of the N.S.W. Department of Labour and Industry, which is vigorously carrying on a campaign to encourage decentralisation areas throughout N.S.W., as well as many of the outlying suburbs of Sydney.

Plans for this building were approved by Warringah Shire Council on August 5, 1947. A tender for the construction of the building made by William Hughes Pty. Ltd., of Rosebery, N.S.W., was accepted on March 10, 1949, and building operations commenced in April of that year. The building was designed in six separate sections. The lower ground floor comprises cutting, pressing and mechanical rooms, and garage. Its area is approximately 9,420 sq. ft. On the main ground floor is situated the sewing room with an area of 11,550 sq. ft. It is 154 ft. long and 75 ft. wide without pillar or post. A saw-tooth roof provides natural lighting, glass louvres along the side walls give operators a clear view of the surrounding countryside, and doors along either side of the building ensure that any breeze will be captured. On the same floor an area of 1,810 sq. ft. has

been allotted for storage receiving and despatch purposes.

No less than 8,000 sq. ft. of space has been given over to staff amenities. Flanked by a huge bay window, the staff cafeteria is complete with a modern kitchen, cool room, store and serving area. Other amenities include rest room, cloak rooms, male and female toilet rooms with hot and cold water connected to showers and hand basins.

Everything possible has been done to provide for the comfort of the staff, as an example—at intervals around the huge work-rooms, porcelain drinking fountains have been installed.

With its total area of 33,660 sq. ft. this building might seem adequate for many years to come. However, it has been designed for considerable future expansion at a minimum of cost.

The opening ceremony took place in the production room,

where the 400 guests scattered sparsely over its area made it look like a vast oversize ballroom. Mr. C. C. Butt as M.C. introduced Mr. H. Taylor, Chairman of Directors of Sargood Gardiner Ltd. Mr. Taylor expressed his pleasure and pride in welcoming guests to the centre. The building was a sign of progress, he said, and should make an important contribution to the manufacturing activities of New South Wales.

Mr. C. J. Bentley told guests that it was 55 years since he had joined Sargood Gardiner's staff. "I was put to sweeping out offices," he said, "which training, incidentally, I find very useful to-day." Mr. Bentley explained that the opening of the building coincided with the centenary of Sargood Gardiner Ltd., which had been founded in Victoria in 1851 as F. J. Sargood.

(Turn to page 34.)

KENWORTH INDUSTRIAL WHEELS

Now is the time to install "Kenworth" HEAVY DUTY Industrial Wheels which cannot damage your floors. The reason is that "Kenworth" Industrial Wheels are built up from highest quality resilient rubber that cushions the load. Yet, resilient as they are, "Kenworth" wheels cannot lose their shape under the heaviest loads because they are generously reinforced with motor tyre cords. This is your assurance of lasting service.

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5" x 2" x 1" "	225 "
6" x 1 1/2" x 7" "	200 "
6" x 2" x 1" "	330 "
7" x 2" x 1" "	480 "
8" x 1 1/2" x 7" "	320 "
8" x 2" x 1" "	640 "
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8" x 2" x 1" bore	640 "
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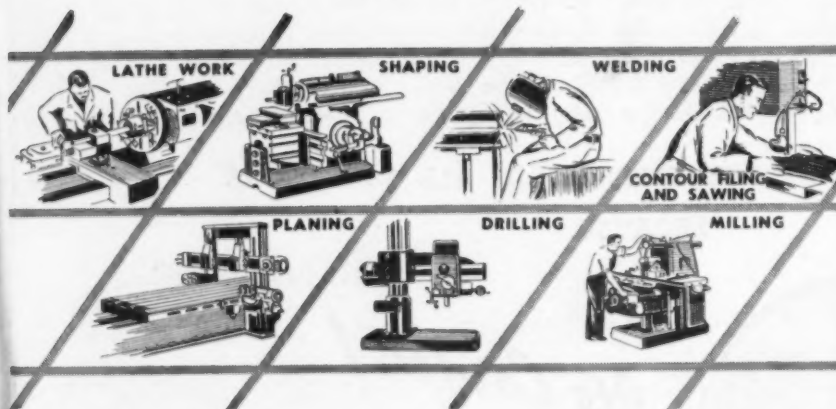
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(Continued from page 32.)

It was pleasant to note, he added, that a great grandson and a great great grandson of the founder were present. The Board of Directors had asked him to thank the N.S.W. Minister for Secondary Industries and Building Materials (the Hon. W. E. Dickson, M.L.C.) for the unfailing courtesy extended by him and his department. The Board's appreciation was also extended to the President of Warringah Shire (Cr. W. F. Horn) and the Past President and Councillors for their co-operation.

Mr. Bentley concluded his address by congratulating Mr. S. R. Hill, Production Manager, who had supervised the construction of the building from the time the first bulldozer had arrived on the site.

The Hon. W. E. Dickson, M.L.C., expressed pleasure in seeing the completion of the structure. He recalled having come to the site twelve months previously and having felt doubt that production would begin by the beginning of 1951, as Mr. Hill had promised. To have succeeded was a great achievement, he said. The policy of Sargood Gardiner Ltd. in erecting a factory on such modern lines with 25% of the space given to staff amenities should serve as a fine example to other manufacturers, he added. It should assist towards better production, and plans for improvement of the site allowed it to be truly referred to as a garden factory.

Mr. S. R. Hill, in thanking the previous speakers for their kind remarks, said that he considered the Production Centre represented the achievement of an ideal. It was in keeping with his Company's awareness that the term factories was old-fashioned. Factories are bleak places where people go to work. "Production Centre" was a term much more in keeping with what it was hoped to achieve at the building, he concluded.

After Business Hours

(Continued from page 1.)

The exquisite dolls of to-day had their origin in the dim mists of antiquity. For they were known to the children of ancient Egypt, Greece, and Rome, some of them with movable legs and arms. Many such specimens have been unearthed at the opening of graves and temples. It has not been demonstrated, however, that they were regarded as toys. For it has been shown that Grecian and Roman girls, who married at the age of twelve or thirteen, dedicated their dolls and dolls' clothes to some goddess on the eve of their marriage. Here is the dedication of a little Greek girl: "Oh, Aphrodite, despise not my doll's little purple neckerchief. I, Sappho, dedicate this precious gift to you".

SD SOLUBLE SILICATES
of Soda Potash
True to Specification.

Silicate & Dolomite Co. of Aust. Pty. Ltd.
ALLEN STREET,
PYRMONT, N.S.W.

Salary has been defined as a sum of money approximately equal to half of what you are worth!

So amazing is the Natural Order that, once a year, almost to the day, the migration of fur-bearing seals takes place. Slowly swimming from their winter quarters off the coast of southern California, they head to the breeding grounds on the Pribilof Islands, far within the Arctic Circle. The convoy, whose pelts represent millions of dollars worth of fur, are assisted to their destination with the maximum of safety through the instrumentality of the Governments of the United States and of Canada. Carefully guarded and escorted by the United States Coastguard they are, at the forty-ninth parallel, turned over to the Canadian Fisheries. The seals often take time off during their four-mile-an-hour journey to play or have a sleep. They roll over on their backs, fold their flippers, looking exactly like old men dozing, as they rock in the Pacific rollers.

An interesting survival is associated with this migration. By law, the Coast Indians are permitted their aboriginal right to take all the seals they can catch. They must, however, use aboriginal methods. This means going out in a dug-out canoe and harpooning the seals with a spear. As may be imagined, canoeing forty to fifty miles off-shore on the west coast of British Columbia is full of hazards. The Indians go out, nevertheless, and make a fair catch each season.

A university has been described by a wag as a fountain of knowledge where students gather to drink.

Surely the world's greatest hoax was attempted by an American who, some few years back, tried to sell to a number of museums what he described as "the skin of the serpent that tempted Eve in the Garden of Eden".

According to science, the greatest achievement of monkeys was the attainment of stereoscopic vision, somewhat like our own. This acquirement meant that the head no longer need be rotated in order to focus both eyes on an object; the eyes themselves were moved.



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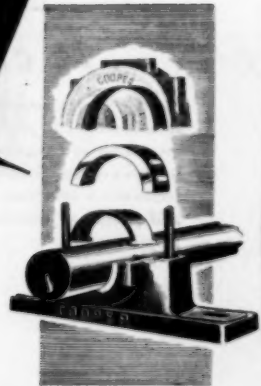
Cooper Split Roller Bearings are applied with equal facility to plain shafts, sunk journals, crank shafts, crank pins, and between fittings such as gear wheels fixed on shafts. Special machining of the shaft for fixing the inner race is avoided, and with the advantage of split housings, the simplest and most economical machine design is achieved.

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The ever-increasing demand for greater output must sooner or later result in the need for plant renewal. The cost of necessary stoppages is minimised by the use of Cooper Split Roller Bearings — dismantling and re-assembling can be effected with ease, speed and economy.

• LONG LIFE AND EFFICIENCY

Cooper Split Roller Bearings have achieved remarkable performance records, and many installations are known where continuous service has been given for over 25 years. Such records give striking testimony to the efficiency, long service and reliability of Cooper on the job.



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Messrs. Farley & Fahy, well-known Adelaide manufacturers' agents, have changed their address from Pirie Street to 77-79 Wright Street. The new 'phone no. is Central 1191-2.

Rounded things no longer appeared flat; they stood out stereoscopically as they do to us. Monkeys do not mistake shadows for solids, as horses do, and they are capable of even appreciating differences of texture.

A salutary warning in a cocktail lounge: "PLEASE DON'T STAND UP WHILE THE ROOM IS IN MOTION".

A safety message: Men still die with their boots on—but one boot is usually on the accelerator.

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Electric motor armature and field coils are wound to exact specifications as to gauge of wire, conductivity, class of insulation and number of turns.

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Double Bay—Pharmaceutical Pro-
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Hi-Speed Manufacturing Co., 18
Katherine Street, Glebe—Deter-
gents.

The New Chocolate Co., 128
Queen Street, Woollahra—Confec-
tionery.

Langmead & Co. Pty. Ltd., 278
Cleveland Street, Surry Hills—
Steel Handbag Frames.

Nepean Forge & Welding Co.,
cnr. High and Evans Streets, Pen-
rith—Mechanical Engineering and
Welding.

Elvira Listwan Pty. Ltd., 2nd
Floor, Stewart Dawson Chambers,
183 Pitt Street, Sydney—Ladies'
Clothing.

Belmore Furnishing Co., 306
Burwood Road, Belmore—Uphol-
stering.

North Shore Plating Works, 12
Alexander Street, Crows Nest—
Electroplating.

Durabrite Electroplating Co., 228
Waniora Road, Hurstville South
—Electroplating.

Kingboard Fibrous Plastic Co.,
70 Christian Road, Punchbowl—
Fibrous Plaster.

McGuire Bros., 250a George
Street, Sydney—Clothing.

Townsend Cordials, 862 Canter-
bury Road, Lakemba—Aerated
Waters and Cordials.

Centennial Instrument Service,
59 Peat Lane, Paddington—Mech.
Eng.

Wellman Cement Works, 67
Hallstead Ltd., South Hurstville—
Cement Blocks and Tiles.

Murphy & Walker, 199 Homer
Street, Earlwood—Electrical Engi-
neering.

C. J. Neale, cnr. Roberts Road
and Liverpool Road, Chullora—
Mech. Eng.

Nelson & Williams Pty. Ltd., 151
Edgeware Road, Marrickville—
Joinery.

A. O'Brien, 70 Park Road, Mar-
rickville—Sheet Metalworks.

Pain Manufacturing Co., 140
Pacific Highway, Waitara—Venet-
ian Blinds.

Phoenix Lacquer Co. Pty. Ltd.,
Lot 15, Canterbury Road, Banks-
town—Paint.

Pickering Cook, 15 Kangaroo
Street, Canterbury—Joinery.

Potters Wheel Pty. Ltd., 5 Car-
rington Street, Summer Hill—Pot-
tery.

F. E. Shone, Mulgoa Road,
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Tanmeco Engineering Pty. Ltd.,
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—Mech. Eng.

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Gold Crest Leathergoods, 64 Alice
Lane, Newtown—Leather Goods.

(Turn to page 38.)

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(Continued from page 36.)

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Chalmer, M. B., 110A Gardinvale Road, Gardinvale—Clothing.
Baker, W. H. & Co. Pty. Ltd., Knox Place, Melbourne—Ladies' Clothing.
Blades, S. V., 18 Dawson Street, Coburg—Cases.
Adler & Brenner, 396 Little Bourke Street, Melbourne—Clothing.
Hair, K., 6 Crockford Street, Benalla—Cement Tiles.
Ryan & Holland, 229 High Street, Northcote—Cotton Goods.
Gillard, R. A. F. W. & E., Settlement Road, Bundoora—Fibrous Plaster.
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Dooley, F. J., rear 838 High Street, Armadale—Welding.

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CLOVER CONFECTIONERY PTY. LTD.—Capital: £10,000. Confectionery manufacturers. Subscribers: Joseph L. Manches and Eugene Reich. Registered Office: Sydney. (Lodged by W. P. McElhone and Co., 44 Martin Place, Sydney.)

HANDLING EQUIPMENT PTY. LTD.—Capital: £100,000. Machinery, plant and equipment manufacturers. Subscribers: Leo E. Tutt and George E. Bryant. Registered Office: South Street, Rydalmere.

KAMSLER, PAUL, H., PTY. LTD.—Capital: £10,000. Manufacturers of leather goods. Subscribers: Paul H. Kamsler and George H. Kamsler. Registered Office: Sydney. (Lodged by E. J. Kirby, 181a Elizabeth Street, Sydney.)

RIDER NICHOLSON PTY. LTD.—Capital: £5,000. Greeting cards manufacturer. Subscribers: Allan G. Rider and Donald H. Nicholson. Registered Office: Sydney. (Lodged by J. C. Harris & Co., 39 Martin Place, Sydney.)

STYLES SAND SUPPLY (VICTORIA) PTY. LTD.—Capital: £50,000. Manufacturers of bricks, tiles and builders' requisites. Subscribers: Kenneth C. Styles and Geoffrey H. Routley. Registered Office: Sydney. (Lodged by Maxwell F. Connery, 75 Pitt Street, Sydney.)

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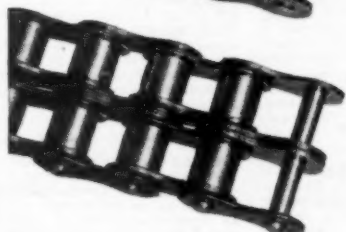
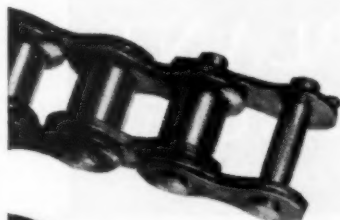
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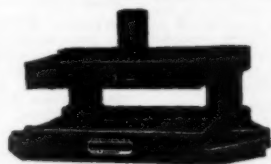
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INQUIRIES FOR PLANT MATERIAL AND AGENCIES

"THE AUSTRALASIAN MANUFACTURER'S" INQUIRY DEPARTMENT

This Inquiry Service is for the use of readers of "The Australasian Manufacturer" who wish to trace suppliers of Plant, Equipment and Materials, and for particulars of agencies offered. Address your inquiry to the Inquiry Department, and give the fullest possible particulars to enable us to put you in touch with the best sources of supply. **INCLUDE A STAMPED SELF-ADDRESSED ENVELOPE WITH YOUR INQUIRY.** It is essential that telephone inquiries be confirmed by letter. No charge is made for Inquiry Services, but normal advertising rates will be charged if agencies are sought by manufacturers' representatives or if goods are offered for sale. For the benefit of new subscribers, inquiries will be published in two or more consecutive issues.

SPECIAL NEW INQUIRIES.

WHEN REPLYING to an Inquiry, please quote the Reference Number and send your reply to the Inquiry Department, "The Australasian Manufacturer", 15 Bond Street, Sydney. **INCLUDE A PLAIN, STAMPED ENVELOPE** so that we can forward your reply to the Inquirer.

PAPER SHEETING MACHINE WANTED: Inquirer wishes to purchase a Paper Sheeting Machine suitable for sheeting paper from 36 in. roll stock. Slow speed machine would be suitable, and one needing repairs would be considered. Manufacturers or suppliers write to Ref. 8386, c/o "The Australasian Manufacturer."

ZINC ROLLING MILL FOR SALE: Overseas plant is available through an Australian organisation. Adaptable also for Aluminium and Copper. This mill is in new condition. Full particulars from Ref. 8387, c/o "The Australasian Manufacturer."

DIESEL AIR COMPRESSOR UNIT:—Vertical Southern Cross 4-Cylinder Engine, with C.P. Compressor. Displacement 160 cubic feet, with Air Receiver. Overhauled, guaranteed first-class order. Write to Ref. 6577, c/o "The Australasian Manufacturer."

ALUMINIUM FOR SALE: Melbourne firm has the following Aluminium for sale: 2,452 lbs. 15½ in. x 16 gauge 38 A1. circles; 316 lbs. 7½ in. x 16 gauge x 6 ft. 578 Strip; and 290 lbs. 8½ in. x 16 gauge x 6 ft. 578 Strip. Price 3/- per lb. Write to Ref. 8388, c/o "The Australasian Manufacturer."

HARDWARE AGENCIES—NEW ZEALAND: New Zealand firm specialising in the sale of Builders' and Cabinetmakers' accessories and having contacts with all wholesalers in the hardware trade throughout New Zealand, desires to contact Australian manufacturers who are looking for an outlet for their products in the Dominion. If required, the goods could be either assembled or finished in New Zealand. If interested, write to Ref. 8390, c/o "The Australasian Manufacturer."

FOR SALE — MASSELY PRINTING PRESS. Model No. 31, now surplus for needs of present plant available for sale. Has been used only for experimental work and is as good as new. Suitable for printing on metal, celluloids, plastics, cloths, leathers, papers, making of specific types of etched plates, and a wide variety of uses. This press is well known through the trade. As good as new, available at a very great saving on a new machine. Write to "Metalware," c/o "The Australasian Manufacturer," Box 1687, G.P.O., Sydney.

FACTORY OR STOREROOM PREMISES AVAILABLE: Owing to scarcity of raw materials, a Sydney manufacturer will have 2,000 feet new covered space, plus similar amount concrete yard available shortly. Stock records and clerical services provided. Offers to Ref. 8380, c/o "The Australasian Manufacturer."

BUSINESS EXECUTIVE WANTS POSITION: Business Executive, 38, well educated, extensive local and overseas experience, accustomed to constructive planning and responsibility at top levels, seeks permanent position with progressive concern planning vigorous policy of expansion or engaged essential work where initiative, drive and organising ability would be recognised. Wide experience in advertising and marketing management, transport, government contracts, office and personnel control. Salary is important, but future possibilities of primary interest. Write to Ref. 8391, c/o "The Australasian Manufacturer."

AUTO-CLAVE FOR SALE:—Fully insulated. Complete with safety valve and pressure gauges and thermometer. Working pressure steam 40 lbs. per sq. in. Tested pressure 80 lbs. sq. in. Inside dimensions 27 in. diam. x 50 in. long. Manufactured by Robinson Bros. Apply Mr. Prouten, Brooks, Robinson Limited, Maffra Street, South Melbourne. MX 5131.

ALUMINIUM FOR EXCHANGE: Adelaide firm has quantities 20-gauge aluminium for exchange on equipment tonnage basis for 72 in. x 36 in. x 16-gauge or near size. Full particulars, write to Ref. 8393, c/o "The Australasian Manufacturer."

FINANCE FOR SMALL INDUSTRY. Executive, aged 36 years, desires to purchase an interest in an established business to £5,000, preferably in manufacturing field, where services can be utilised. Enquirer has managerial sales and accounting experience, together with a sound administrative background. Write to "Finance," c/o "The Australasian Manufacturer," Box 1687, G.P.O., Sydney.

STEEL STRIP FOR SALE. We have available from stock supplies of steel strip, 18 and 20 gauge, 6 in. wide x 72 in., long imported deep drawing quality. Write to Edgar Ryves & Hawker, 8 Bridge Road, Glebe, N.S.W. Phone MW 2588.

STEEL OFFCUTS FOR SALE: A few tons of rectangular steel offcuts 4½ in. x 9½ in. and 6½ in. x 11 in., 21-gauge. Apply J. G. Lloyd & Co. Pty. Ltd., 94 Pelham Street, Carlton, N.3., Victoria. FJ 5121.



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health and shortage of working
capital. 2,200 sq. ft., own prem-
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assets about £40-£45,000. Write to
Ref. 8392, c/o "The Australasian
Manufacturer."

SURPLUS MATERIALS FOR
SALE—LACTIC ACID, DYES,
LITHOPHONE, ETC.: Melbourne
firm has for sale the following
surplus materials and the name
and address of this inquirer will
be supplied on application to Ref.
8394, c/o "The Australasian Manu-
facturer": (1) 44 gal. Lactic Acid,
50%; (2) 1 ton Lithophone; (3)
112 lbs. Zinc Oxide; (4) 400 lbs.
Sod. Fluoride; (5) Different Acid
and Pigment Dyes; and (6) Old
Zinc plates.

SPRING WIRE: Sydney firm
wants to purchase supplies, in
quantity, of 9, 10, 11 or 12 S.W.G.
Spring Wire. If you can supply,
write to Ref. 8381, c/o "The Aus-
tralian Manufacturer."

HEXAGON BRASS RODS—
SUPPLIES WANTED: Sydney
firm needs approximately 300 feet
of 0.5 Hexagon A/E/ Brass Rods,
machining quality, but would be
satisfied to obtain portion of this
quantity, perhaps from 2 or more
sources. Any firm that can supply
in full or a portion of the 300 feet
is requested to communicate with
Ref. 8382, c/o "The Australasian
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also prepared to replace the ma-
terial to the supplier when stocks
on order from the mills come to
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firm supplying.

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SURPLUS QUANTITY FOR
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invites quotations for the supply
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are pleased to announce the completion of arrangements whereby the services of

—FRANK P. HENDERSON— CERAMIC ENGINEER, U.S.A.

will be available for consultation with the Australian Ceramic Industry as from March 1, 1951, for an indefinite period. Whilst Mr. Henderson has a wide experience in the Ceramic Industry generally, he is particularly well qualified in problems associated with brick manufacture, including tunnel kilns, equipment design and plant layout for both the dry press and wet extrusion processes.

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1. Semi-finish

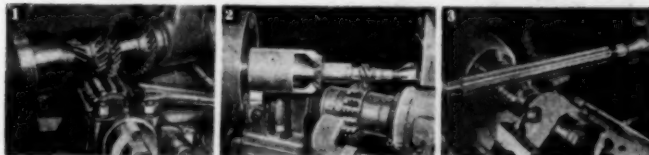
Operation — Semi-finish climb hob 27T, 9 pitch helical gear. Material — SAE4620, 135 Brinell. Hob — B-C ground, double thread, taper bore. Feed — .047" per rev. of work. Speed — 174 RPM. Length of Cut — 68". Floor-to-Floor — 4 minutes. Accuracy — Involute within .0005" lead within .0005", kickout within .001".

2. High Helix Pinion

Operation — Climb hob 4T, 12 pitch pinion, 1 per load, lead 1.136". Material — AMS 6240 Steel, 170-196 Brinell. Hob — B-C ground, single thread. Feed — .010" per rev. of work. horis. Speed — 174 RPM. Length of Cut — .5" horizontal. Floor-to-Floor — 3.86 minutes. Accuracy — .001" pitch line runout.

3. Precision Spline Shafts

Operation — Climb hob 8 key, straight spline. Material — C1137, 152-181 Brinell. Hob — B-C ground, single thread, taper bore. Feed — .030" per rev. of work. Speed — 103 RPM. Length of Cut — 14". Floor-to-Floor — 28.0 minutes. Accuracy — Parallelism within .0005" over 14" length, width within .001" over pins.



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Monthly Plastics Review

A special section published monthly with the object of contributing to the progressive development of the Plastics Industry in Australia.

Metal-Cored Plastic Screw

EVERY once in a while a new application for plastics comes along that involves not just a new product but a new type of use for plastics. In this category falls a new plastic-metal fastener, recently introduced overseas. Plastic screws, as such, have been known for many years, but their uses have been limited by the physical property requirements of industrial applications. What was needed was a screw fastener with the strength characteristics of metal and the electrical, thermal, and chemical properties of plastics. The answer—obvious enough once the details were worked out—is a plastic screw with a metal core.

Overlapping serrations are cut in a metal rod to give an effect somewhat like knurling. A layer of a plastic material is then extruded over the metal rod, the plastic flowing into the serrations and bonding tightly to the metal. This composite plastic-metal rod is then formed and threaded on an automatic screw machine, the threads being cut only in the plastic covering and not extending

through to the metal core. The resulting screw is completely electrically insulated and has the corollary advantages of resistance to shock, vibration, and corrosion.

Mechanical tests made under torque and axial pull, as well as dielectric strength tests, show the plastic-metal screws to have ample physical and dielectric strengths for a wide range of applications.

The manufacturer is currently mass producing the new fastener in four plastics: cellulose acetate, polyethylene, cellulose acetate butyrate, and ethylcellulose. Other extrudable plastics are produced on special order, and will be mass produced when demand by various industries warrants it.

FIELDS OF USE.

Research by the producing company and suggestions from users indicate that the new composite screws have major uses in the electrical and electronic fields, in mechanical components, and in the chemical industry.

When used in electrical component design, the plastic insulat-

ed fastener makes possible some entirely new concepts. For example, the insulating boots, washers, tubes, and bushings formerly used to insulate metal sections can be replaced by a single fastener that carries the insulation as an integral part of the screw. Imaginative electrical designers have already taken advantage of this feature to create new electrical components that are smaller, cheaper, and simpler to manufacture and use. Applications in the electrical field extend from simple jacks and relays to complex electronic calculators.

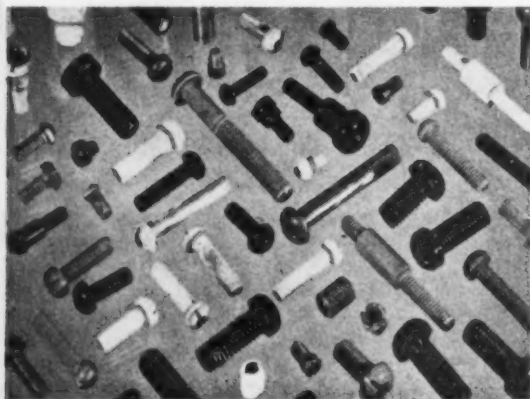
In the design of strictly mechanical parts, the advantages of vibration and shock resistance, as well as the self-locking characteristics of the threads, make this new plastic product the most important recent development in the fastener field. In a sound recording machine produced overseas, for example, screws with a soft flow plastic were chosen to mount components subject to vibration.

The low frequency vibration was eliminated and with it an annoying resonance in the surrounding cabinet. More intense vibrations, inherent in many mechanical components, do not loosen the bond between the plastic threads and the internal threads of a metal nut.

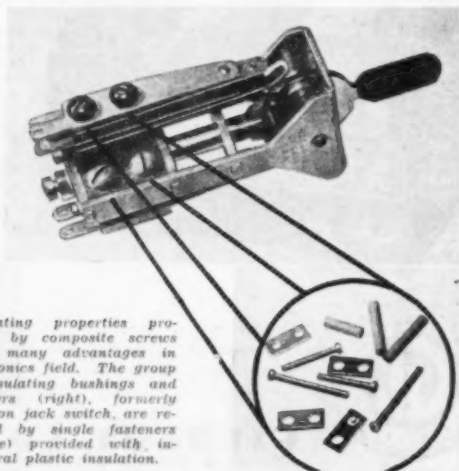
The vibration-resisting characteristics of these plastic-metal screws is the property which led a company, to choose them for wide use in the equipment which it manufactures. This same property, plus electrical insulation, is made use of in assembling the electrical components of seismographs.

For applications in the chemical and food industries, the choice of plastics and metals available in these screws lends itself to the production of chemically resistant fasteners. The plastic exterior of these composite screws can be used as a liquid seal in containers, particularly in cigarette lighters,

(Turn to page 46.)



Screws are made of different plastics in many sizes and types, and in a wide variety of colours.



Insulating properties provided by composite screws offer many advantages in electronics field. The group of insulating bushings and washers (right), formerly used on jack switch, are replaced by single fasteners (above) provided with integral plastic insulation.

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(PHENOL FORMALDEHYDE)

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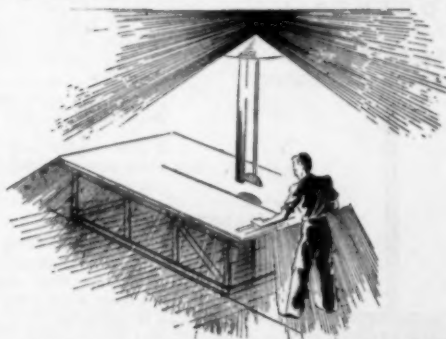
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If your requirements are in **plastics**—and not necessarily phenolics—you'll like the way we get down to working with you on your specific needs.

Production Note—

Product illustrated: Floor polisher housing. **Client:** Tecnico Ltd. **Dimensions:** 8 ins. high, 14 ins. wide. **Material:** Cotton flock filled, medium shock-resistant phenolic, walnut finish—the first moulding of its type produced in Australia.

Walter Barr Pty. Ltd.

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PRODUCERS OF COMPRESSION, TRANSFER & INJECTION MOULDINGS IN MOST THERMOSETTING & THERMOPLASTIC MATERIALS

(Continued from page 44.)

atomizers, or bung taps in drums. The threads of the screw act as a multiple unit of washers and, in effect, produce a perfect seal. This application is of great importance where highly volatile chemicals are used. In the field of refrigeration, for example, the new plastic metal screw can be used to replace the insulating bushings and extruded washers that prevent loss of refrigeration and chemical refrigerants. Furthermore, when used in or around food containers they impart no odour, stain, or taste of any kind whatever, and can be made fully resistant to the effects of food acids.

Because the plastic exterior of these screw fasteners can be produced in an almost unlimited range of colours, they can well be adapted to the simplification of production colour coding systems.



Cross-section of plastic-metal screw, showing plastic bonded to serrations cut into metal rod. Composite unit is formed by cutting threads only into plastic.

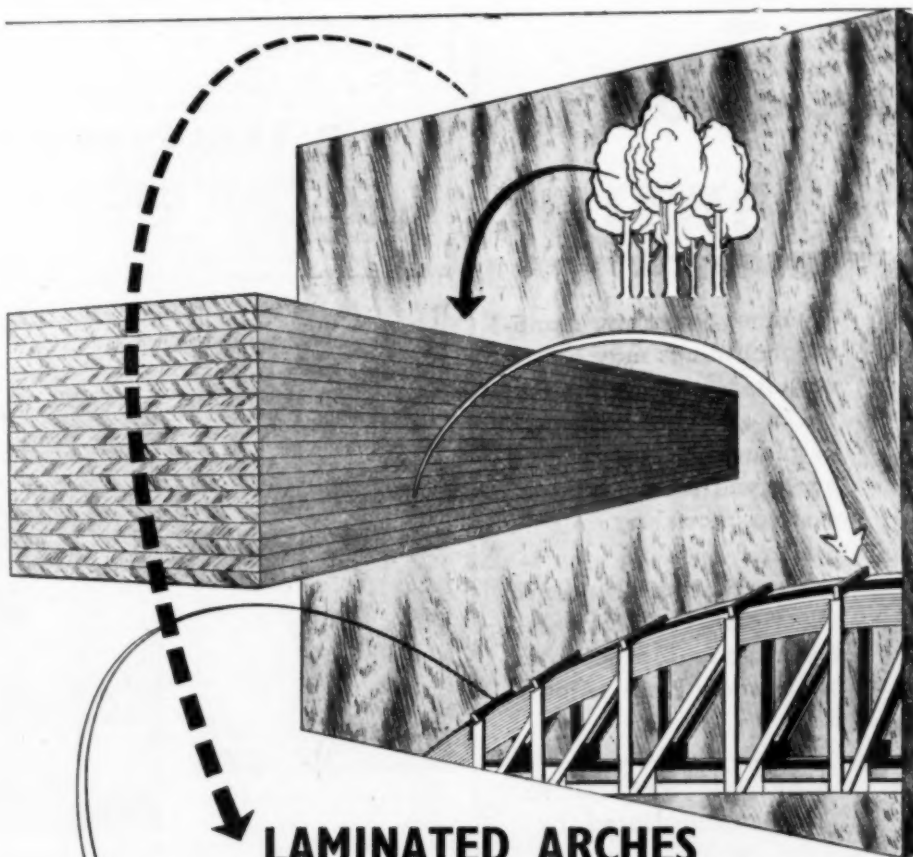
In certain applications where colour is a dominant appearance factor, matching or contrasting screw colours offer obvious advantages.

SELECTION FACTORS.

Of course, the new fasteners are selected by length, diameter, and type of thread, like any other screw, with the added consideration of the plastic material best suited to the end use. Composite screws that are available now range in size from No. 8 to 1 in. diameter with cellulose acetate; from No. 10 to 1 in. diameter with butyrate; and from No. 8 to 1 in. with ethyl cellulose. A much more complete list of sizes, head shapes, and thread types is scheduled for future production.

As is usually the case when an entirely new type of product is under development, the manufacturer found that current manufacturing methods had to be revised to suit the company's special

(Turn to page 48.)



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The manufacture of urea formaldehyde adhesives by Beetle-Elliott Ltd., has simplified and improved the construction of laminated wood arches. Glue-lines are waterproof and immune to attack by micro-organisms. Properly designed arches are capable of withstanding all the stresses of modern cantilever construction.

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(Continued from page 46.)
needs. Certain types of plastics and specific flows proved to be the best basic selection to fit the majority of applications, and at the same time, to be the most practical to extrude and machine. A more extensive development programme has now been set up at a leading U.S. university research institution to further refine material selection and production methods. This programme will concentrate on the

a small brass nut is unscrewed, permitting the upper half of the top compartment to be removed.

A grillwork arrangement, permitting maximum exposure of the



The torque of driving is applied only to the metal core of screw.

little-known problems of mechanical vibration and fatigue properties of plastics and plastic-metal laminates, and on new techniques for screw-machining plastics. The results of this test and development programme promise to be an important addition to plastics literature.



Two-part acetate compartment at top holds hygroscopic crystals.

crystals to air, is moulded into the two halves of the top compartment. The extreme toughness of the acetate makes these comparatively slender sections safe from breakage; its corrosion-proof qualities enable the unit to withstand constant exposure to moisture.

DEHUMIDIFIER

Protection against damage caused by excess humidity in homes, ships, factories and warehouses is offered by a new dehumidifying unit made of Tenite I cellulose acetate. The product consists of an upper container which holds hygroscopic crystals and a lower catch basin for moisture drawn from the air.

Non-toxic, odourless, and non-flammable crystals, poured into the upper chamber, attract moisture from the atmosphere. This is collected in the lower receptacle, which, when completely filled with water, is emptied. When the crystal supply is to be replenished,

PHENOLIC-IMPREGNATED FIRE HELMET

Use of a pre-forming and deep-draw moulding technique has made possible the production of a new phenolic-impregnated linen fire helmet which is now in use by leading fire brigades in the United Kingdom. The new helmet has been awarded official approval by the Fire Service Department of the British Home Office following successful tests by the Department of Scientific and Industrial Research and the National Physical Laboratories.

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SPECIALISTS IN INJECTION AND COMPRESSION PLASTIC MOULDINGS AND DIES

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JJ 1536

This new plastic helmet does not deform or discolour under heat conditions encountered in fire fighting. Self-coloured black, it needs no surface application of colour which might chip or abrade in use; it provides better ventilation through a clipped-in harness; it is light in weight; and it can be sold at half the price of other helmets.

Weight and ventilation of helmets assumed a new importance during World War II air raids on Britain. Of even greater consequence to the lives of firemen is

duction time averages three to four helmets per hour, depending on shape.

In the laboratories named above, the helmet survived these tests:—

(1) A 14 lb. weight dropped on the crest four times from a height of 12 ft. (2) A 14 lb. weight dropped on the shell four times from a height of 12 ft. (3) A 2 lb. bullet-shaped weight dropped on the shell from a height of 12 ft. (4) A 12 in. square of 1 in. steel plate dropped edgewise across the crest from a height of 12 ft. (5) Subjection to 10,000 volts of electricity



(Left) Helmet being removed from moulding press. New moulding technique was evolved to protect linen fibres (Right). Additional plastic is applied to points of greatest stress to prevent breakdown of fibres. This is done just before draw moulding on 400-600 ton press at 360 F. Production averages from 3 to 4 helmets an hour.

the danger which is magnified by the use of metal helmets. Hence, British authorities turned to plastics for an answer.

Designs were obtained from the Department of Scientific and Industrial Research and the Fire Service Department of the Home Office, and experimental work was started. Because of its many known advantages, phenolic impregnated linen was selected for the material, but a new moulding technique had to be evolved which would not damage the linen fibres by stretching. This was accomplished by (a) folding the material to the required dimensions without cutting; (b) preforming in a low-temperature press; and (c) draw-moulding to final form in a 400-600 ton press at 360 deg. F. Just prior to the drawing operation, additional plastic material is added at points of greatest stress to prevent breakdown of the fibres during the moulding operation. Pro-

for 1 min., wet and dry. (6) Exposure to a 1 in. Bunsen flame during one complete rotation of the helmet in 40 sec.

AUTOMATIC ELECTRIC FLY CONTROL.

The sleek lustre of moulded black phenolic has been combined with die-cast and drawn aluminium in the production of a revolutionary unit for automatic fly control. The device is essentially a thermostatically controlled electric vaporizer. It contains a cup of special insecticide in a heater encased in black phenolic, mounted at the end of a wall bracket. When the current is turned on, the insecticide is volatilized, and fine, invisible particles of it are dispersed. It is claimed that the insecticide is harmless to humans, animals, and foodstuffs, and that it will not

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THERE'S a solution to every problem—whether you are seeking details of the high frequency technique of welding P.V.C. or the low power loss of Polystyrene; whether you are divided between the merits of nitro-cellulose and those of cellulose acetate, or experimenting with the bending of Lactoid. Every problem that touches the use of BX Thermo-plastics is dealt with conscientiously and without obligation.

72 years of experience and progress are behind the BX Technical Development Service. It exists for the express purpose of helping you.

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stain or leave an oily film on any surface.

Certain materials were selected by the designer for functional reasons. Specifications called for the bracket arm and body to be made of die-cast aluminium because of the requirement for strength and high heat conductivity. The need for high heat conductivity and shatter resistance

Phenolic is also impervious to the insecticide.

The phenolic housing was compression moulded in one piece from black phenolic. An interesting feature in the finishing operation of the housing is that a shallow groove is machined to finish the exterior parting line. This lathe operation serves not only to remove the flash, but also to elimi-

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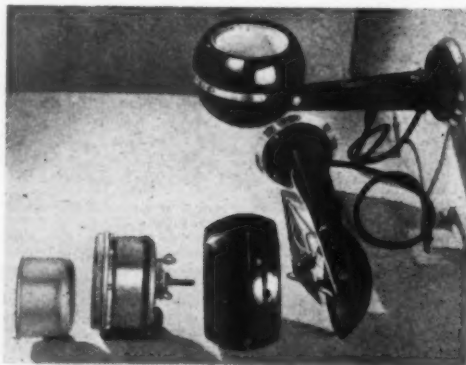
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Moulded phenolic, providing high heat insulation, houses fly destroyer. Component parts are, left to right, aluminium cup and body, phenolic case.

also dictated the use of anodized deep-drawn aluminium for the cup holding the insecticide.

Moulded phenolic was chosen for the housing because of its high heat insulation as well as its appearance. Heat insulation is an important factor in this unit, because the temperature of the heater body may rise as high as 160° C.—yet the temperature of the exterior face of the housing must still remain low enough so that anyone touching it will not be burned.

nate the necessity of an expensive buffing operation.

The device has found many useful applications in food stores, kitchens, restaurants, and residences where protection against pests and disease-bearing insects is desired. Connected to an ordinary wall socket, the unit consumes about the same power as a 60-watt bulb—but only while the thermostat is on, which is about one minute out of every six.

ACCOUNTING MACHINE EFFICIENCY.

Precision engineering for exacting service . . . This is the guiding key to the construction and operation of the Electric Punched Card Accounting Machine produced by International Business Machines Corporation. To meet the demand for the rapid accumulation of facts and figures, this machine can list 150 lines of information a minute from IBM cards or accumulate information from IBM cards at 150 cards a minute.

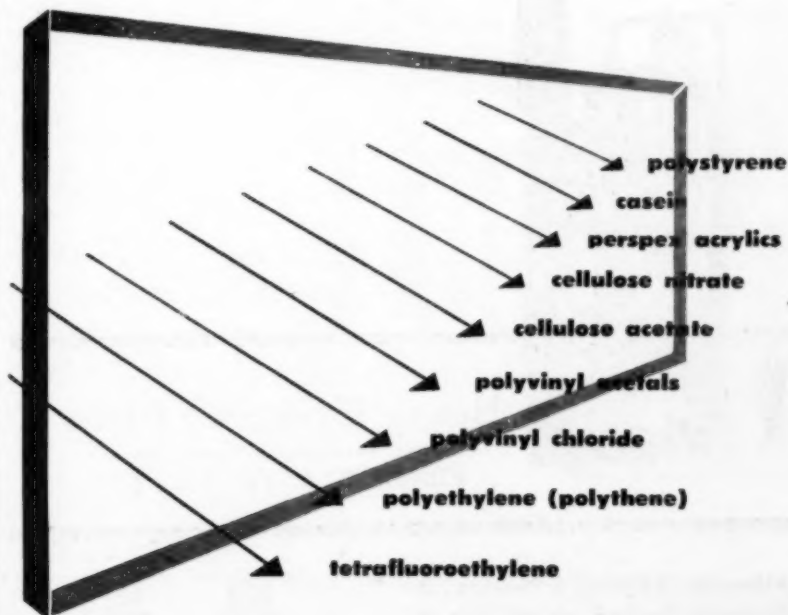
A type wheel in each of the 120 printing positions can print 47 characters including all letters, numerals, and 11 special characters necessary for the compilation of accounting information. Alphabetical as well as numerical information can be printed in any position on a report form; money signs, commas, and periods are printed where needed in amounts; and asterisks are printed to the left of significant amounts for cheque protection. The 10 characters horizontally to the inch provided by the machine enable reduction in the over-all size of forms and savings in forms costs.



This IBM accounting machine lists 150 lines of information a minute. It contains four control panels precision-moulded of "Bakelite" phenolic plastic.

Vital to the efficient operation of this machine are four control panels moulded of "Bakelite" general-purpose phenolic plastic. Each panel consists of a flat plate measuring 10½ inches long by 9½ inches wide by .375 inches thick. Representative of the extreme accuracy that can be obtained with this material, each panel contains twelve hundred and eighty .157 inch diameter moulded-in holes equally spaced over its surfaces. The function of the panel, to which information selecting plugs are connected, demands the uniformity of location of these holes. The tolerance on the location of these holes, appreciably smaller than that previously considered as commercially feasible, is $\pm .007$ inches in a maximum of 5 inches. Thus, the dimensional stability of the panel under a wide variety of climatic conditions is of paramount importance.

"Bakelite" phenolic plastic was especially chosen for this application because it possesses excellent dimensional stability, provided for uniformity in moulding, and offers the required mechanical strength. In addition, this plastic will not become worn by the insertion of brass plugs in the holes nor will



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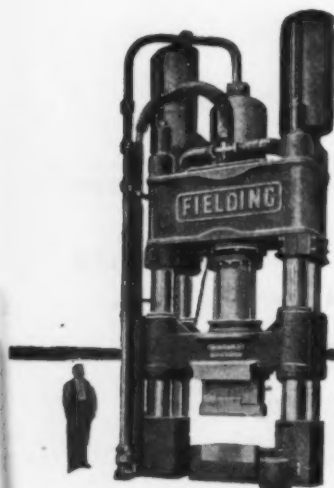
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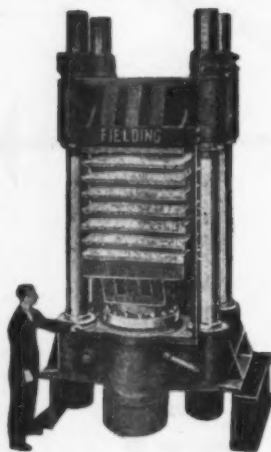


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As licencees of Fielding & Platt Ltd., of Gloucester, England, we are able to offer industry a wide range of hydraulic presses, pumps, accumulators and related equipment for every industrial and manufacturing process—Blanking and Forming Presses, Straightening Presses, Forging and Trimming Presses, Veneer and Plywood Presses, to name but a few.

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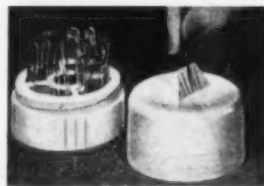
It cause excessive wear of the plugs.

The use of "Bakelite" phenolic moulding plastic also reduced the cost of this panel since it eliminated machining operations including the drilling of the 1,280 holes. After moulding the panel is then prepared for surface finishing, sprayed, silk-screened with the proper numerals and then given a final spray.

Additional features of this accounting machine are a new card feed which holds a card stationary and allows it to be read repeatedly, provision for storing alphabetical and numerical information in the machine until needed, 112 net balance counters, increased selector capacity, and ability to print and cross-add totals in any desired sequence.

PLASTICS PLUS MAGNETS

Containers originally designed simply as holders for a variety of small objects can assume new versatility when the virtues of plastics are combined with the merits of magnets. An example of such combinations is shown below. The versatility of plastic moulding operations makes it a simple matter to mould the magnets or to provide for inserting them during assembly. The magnets may be used to hold



Permanent magnets in magnetic pin box.

objects in a container or to hold the container to an iron or steel surface. Permanent Alnico magnets in the walls of the magnetic pin box, illustrated, hold contents even when the box is inverted. The base is injection moulded of cellulose acetate. The cover, compression moulded of urea, is removed or closed by a quarter turn; crest on top simplifies spreading ends of hobby pins. Colours are ivory, aqua, pink, or red.

FINISHING PLASTICS WITH METAL-WORKING TOOLS

Moulded plastics drop from the presses with most of their surfaces smooth and glossy, and these surfaces require no more processing. But gates and risers, as well as flash, must be removed before the parts can be sold. If machining is done, the cut surfaces and any edges must also be cleaned up to a finish comparable to that on the raw mouldings. Processing these elements parallels similar operations on metal products.



This MARINO FLEXIVANE PUMP ran continuously for 3,500 HOURS

(except for an inspection at 2020 hrs.)

During this test run the Flexivane received no attention or lubrication whatsoever. The only repair necessary after the inspection at 2020 hours was the gland seal, which was replaced at a cost of 1/3. The performance over this whole exacting test run has been outstanding. The Pump has already given the equivalent of well over 20 years' normal service.

Manufactured by
Marino Products Pty. Ltd.
BARRY PDE, VALLEY
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Collins Street, Hobart.

Thermosetting plastics produced by transfer moulding, a kind of compression moulding, are formed with gates and risers. These must be removed and the surfaces exposed must also be finished. One mould-design problem is to locate the gates and risers so they can be easily removed with a band saw or some other easily operated machine.

Parts turned out by conventional compression moulding have flash attached. This can most easily be taken off by tumbling, but it is not always possible. Although many attempts have been made to mechanise flash removal, the common flat file is still the best tool. In the hands of a skilled bench hand, the file will clean effectively and will not dig into already finished surfaces. Round parts can be chucked or carried on a mandrel so light file pressure will follow the work, despite any eccentricity of the part, to smooth edges down. Tools held rigidly in a toolpost will not usually work because of common unevenness of parts and the difficulty of chucking them exactly on centre.

On the thermoplastic side of the industry, shearing is the most used method of removing gates. When the material breaks under the shear, jewellers' saws can be utilised. Because of the nature of thermoplastics, high-temperature machining is not possible, so wet grinding and final polishing must be watched carefully.

Pin-gating, in addition to allowing controlled material injection which produces full moulds with no air bubbles, allows breaking off the gates. Little finishing is necessary.

Carbides are usable on thermosetting plastics, and often produce the best results. Although diamond tools can finish surfaces as smooth as the raw moulded parts, they are all-purpose tools, and are not always best for all cases.

When plastics are moulded, most integral holes have flash across their edges. Economically, the best tool is a rose reamer, which cuts off at a 45 deg. angle. When sharp edges are desired, drills are used, but this means that the pro-

duct must be designed so the holes are standard drill sizes.

Drilling side holes which cannot be moulded involves hardened bushings, just as in idrilling steel. Tapping is considered difficult because taps wear out quickly, especially in mineral-filled materials. Few materials can be tapped to gauge size; a class 1 fit is almost impossible, 2 is difficult, and 3 is nominally a standard. Because of wide differences in moulding practice and materials, it is always wise to try for size on any machining operation before setting up production.

Thermoplastics present an altogether separate problem. Springback is a common effect in thermoplastics, and it must be allowed for in all machining. Chucked parts will distort in the lathe, and when released will not gauge the same as they did when held. Diamond tools are generally effective, but allowance must be made for springback, even on straight cuts.

If it can be controlled, heated machining has a useful place with thermoplastics—the tool itself is heated. One possibility is cutting off gates with a heated wire.

Odd-shaped holes in both types of plastics can often be best finished by removing flash with punches. A fixture holding a number of punches of the right size and shape can clean out all holes and slots in one plane at one stroke. It is helpful to have these punches different lengths so they contact the work at different times and stagger the load. Such punches must be loosely located in the fixture to allow for different shrinkage from part to part.

Because some materials shrink for an appreciable length of time after ejection from the mould, better results will be obtained from any machining if the parts are aged. Where close dimensions are important, ageing is necessary. Although this practice often involves a number of days, material data sheets cannot allow for all variations of temperature, pressure, pre-heating, and other elements, so ageing should be determined experimentally before a run is started.

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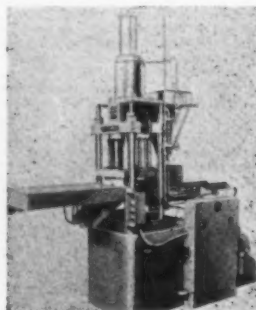
NEW DUAL PURPOSE MOULDING PRESS

Both thermosetting materials
and fast-curing alkyd compounds
can be moulded on the new dual
purpose plastics moulding machine.
illustrated. By merely operating
two valves, the conversion from
one type of moulding to the other
can be made in a few seconds.

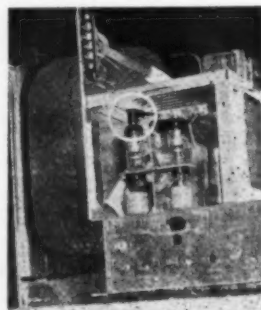
The fully automatic unit has a
capacity of 50 tons with a 15 x 13

in. platen area, when using conven-
tional materials; for high-speed
alkyd moulding, it has a capacity
of 24 tons and a fast closing speed
of 240 in. per minute. For protec-
tion of the mould, this rate is re-
duced a split second before the
force enters the mould.

One connector is designed to fit a
standard all-metal tube top with a



Conversion of this new moulding
press takes only a few seconds.



New type tube cap connector
(circle) is continuously insulated.

in. platen area, when using conven-
tional materials; for high-speed
alkyd moulding, it has a capacity
of 24 tons and a fast closing speed
of 240 in. per minute. For protec-
tion of the mould, this rate is re-
duced a split second before the
force enters the mould.

diameter of 4 in., while its com-
panion will fit standard glass re-
ceiver-type tubes having a dia-
meter of 7/8 in.

CORROSION-RESISTANT PUMPS

Modified phenolic resins which
will resist 60 per cent. hydrofluoric
acid at elevated temperatures have
been developed overseas.

To date this phenolic has been
used primarily for pumps used in
chemical plants. The resins are
either cold cast or laminated with
glass cloth and moulded into desired
shapes. In a special problem in-
volving low strength sulphuric
acid, no metal or alloy pump had
ever been found which could give
maintenance-free service for longer
than three to four months, accord-
ing to the company. Six pumps
made from this phenolic have been
in service on such a job for more

TUBE CLIP INSULATION

Through the use of moulded poly-
ethylene an overseas company is
producing vacuum-tube cap con-
nectors in which the insulation for
the wire lead and the grid cap is
a single homogenous unit. The
result is continuous insulation—
ideal for high-voltage applications
—and complete strain relief on the
wire lead.

This latest addition to the com-
pany's standard tube-cap line came
about as the result of basic changes
in television circuit designs requir-
ing a unit of this type. Since large-
volume and cost factors were in-

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hemical service to industry



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SUN-1-X-3331

than three years with no serious attack. In another case, fittings for plastic pipes for muriatic acid service were lasting only six days. They were replaced by fittings which have been in continuous operation for several years.

The company is now preparing to manufacture a full line of equipment, including reaction, absorption and storage vessels, valves, pipings, fittings, pumps, and miscellaneous chemical containers.

NEW PHENOLIC PLASTICS HAVE HIGH IMPACT STRENGTH.

Three phenolic moulding compounds have been placed on the market overseas. All three fall into the impact type classification and provide new properties or production performance. Two are

high-impact, fabric-filled materials, while the third is a nitrile rubber-bearing, wood-flour-filled material.

The two new fabric-filled materials utilise two-step resins, and have improved flow properties and finish and are less critical when electronically preheated. One has an impact strength of 1.4 ft.-lb. per in. on the Izod scale. Its unusually good flow properties allow it to be either compression or plunger moulded. It possesses a balance of regular mechanical properties and good electrical properties for this type material. The second fabric filled compound is similar but has almost double the impact strength (2.2 ft.-lb. per in.). Moulding properties are not appreciably affected.

The third new material has the mouldability of general-purpose materials, but because of its nitrile rubber content, it possesses improved impact strength and shock

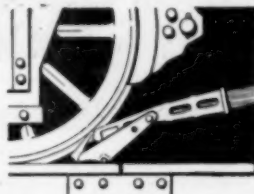


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resistance. Its low modulus of elasticity (0.6 x 10⁶ lb. per sq. in. in tension) allows it to be used in thin sections around metal insets.

Moulded parts are capable of standing repeated abuse without failure. The material can be plunger or compression moulded and has good surface appearance. All three phenolics are characterized by high impact resistance. The fabric filled compounds have improved production properties and can be moulded easily. Impact strength represents the only difference between the

two. The nitrile rubber-bearing plastic, also impact resistant, is important for durability and ease of production.

VINYL WALL COVERING HAS COTTON BASE.

Plastisol coated over a cotton backing forms a new wall covering which has been developed. The material is furnished in 36-in. width.

Like other vinyl surfaces, the surface is impervious to ink,

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This machine is designed for the production of high speed cutting tools. It is a self-acting machine, and is capable of producing a large number of tools at a time. It is a very efficient machine, and is capable of producing a large number of tools at a time.

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This machine is designed for the production of high speed cutting tools. It is a self-acting machine, and is capable of producing a large number of tools at a time. It is a very efficient machine, and is capable of producing a large number of tools at a time.

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This machine is designed for the production of high speed cutting tools. It is a self-acting machine, and is capable of producing a large number of tools at a time. It is a very efficient machine, and is capable of producing a large number of tools at a time.

MITCHELL OF KEIGHLEY, 6½ in. to 12½ in. Centre Gap Bed, Self-acting Sliding, Surfacing, and Screw Cutting LATHES have for nearly 60 years possessed a high reputation as first-class general purpose, medium-priced machines.

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grease, water, and most chemicals; is fire resistant, colorfast, and odourless; and the producer claims that it will last longer than the linseed-oil coated fabrics which have been used for this type of wall covering for many years. The covering is especially suited to bathrooms, kitchens, dinettes and play rooms, but designs are being developed to suit any room of a house.

The material may be easily applied by the home owner with ordinary wallpaper paste. The edges are trimmed so that there is no overlap and no trouble in matching the design. If it is ever necessary to remove the wall covering or if the home owner decides to change the decorative scheme, it is a simple matter to pull this covering from the wall without the usual mess encountered when ordinary wall coverings are removed. The covering will not crack, chip,

nor peel, and when the housewife wants to clean it, she can scrub at particularly stubborn spots without danger of rubbing off part of the design.

PULVERISING TECHNIQUE IS FAST AND EFFICIENT.

Rapid, effective pulverisation of previously hard-to-grind materials such as plastics, foodstuffs and other organic materials is claimed for a method recently developed. Liquid nitrogen cools the material rapidly to a point of maximum fragility, reducing the amount of energy required for its fracture. Saran and styrene, previously resistant to speedy pulverisation, are being successfully production-ground by this method.

On Our Bookshelf

GREATER PRODUCTION

Few will quarrel with the theory that only more production will put more value in the pound. When we seek to analyse how to secure it, however, we come up against the catch-cry that labour will not work; that we have lost the incentives of both the carrot and the stick; that our moral values have changed.

Because this problem is ever present we naturally attempt to propound solutions. To some, greater production will only come when men commence to work better and, particularly, when there are queues at the gates. To others it is the re-adoption of the 44-hour week. To still more it

will arrive when we can get the unions to agree to financial incentives.

In the introduction to his book, "Greater Production", Walter Scott says that each of these suggested solutions may indeed play some part in greater production, but claims that in each of them there is a certain amount of truth and quite a lot of misconception.

For example, to the suggestion that production would increase greatly if men would only work, Mr. Scott retorts that while this is partly true, it is also true that production would increase greatly if many more managements did their own job better, and he reminds us that Labour will never produce better than Management plans for it to produce.

Many may consider that in this book, dealing with the problems and possibilities of greater production and including a full discussion of incentives, Mr. Scott is too critical of Management. Most readers, however, will agree with one of our better-known industrialists, who said recently that the major enemy of Australian Management is apathy; and they will admit that Walter Scott deals in an unbiased manner with all aspects of this topical subject. He gives the reasons for present-day restlessness in industry and makes suggestions for future harmony, presenting the case fairly for the employer, the employee and the Trade Union.

The work consists of over 700 pages, and is divided into three parts—Part I, The Problems of Greater Production, deals with the nature of the problem, the psychological aspects, and the position of management, Trade Unions and employees. Part II, The Possibilities of Greater Production, deals with the approach to solutions and greater productivity, the reduction of absenteeism, labour turnover, strikes and insecurity, and the improvement of methods, industrial relations, public relations and morale. Part III, Financial Incentives, deals with the results achieved by incentive plans, the value of incentives, conditions governing incentive plans, Union hostility to incentives, and suggested patterns for Trade Union agreement.

This book should be in the hands of every serious thinking Australian industrialist. Many of the suggestions contained therein can pay excellent dividends by increasing production and reducing Management's worries.

Walter Scott's "Greater Production, Its Problems and Possibilities, with a Full Treatment of Incentives" (price £3/10/-) is published by The Law Book Co. of Australasia Pty. Ltd.

TINPLATE HANDBOOK

Buyers and users of tinplate will find this illustrated booklet invaluable, particularly if they are engaged in the export or import trade, as it contains all the facts and information they are likely to require and also includes an

English-French - German - Spanish
glossary of the technical terms of
the trade.

The steelmaking and tinning
processes used in the manufacture
of both hot-dipped and electro-
lytic tinplate are summarised, and
the factors which determine the
suitability of the various types of
tinplate for any particular appli-
cation are discussed. The major
uses of the principal grades of
tinplate are indicated and meth-
ods of testing mechanical prop-
erties, coating thicknesses and lac-
quer adhesion are briefly
described.

The trade terms used by the
British and American tinplate in-
dustries are defined and methods
of grading and classifying the
finished tinplates are reviewed.

Gauge tables and conversion
tables covering a wide range of
coating weights and thicknesses
will be of value to all tinplate
consumers and specimen orders
will be useful to buyers who are
not thoroughly conversant with
modern methods of tinplate pro-
duction.

In the preparation of this book-
let, which bears the authoritative
stamp of the Tin Research Insti-
tute, the author has received ad-
vice and assistance from friends
engaged in the tinplate and pack-
aging industries on both sides of
the Atlantic.

It is of interest to note that tin-
plate production has increased
from an annual average of
3,762,000 long tons in 1936-39 to
4,488,000 tons in 1949.

This publication, written by W.
E. Hoare, B.Sc. (Eng.), F.I.M.,
A.I.P.E., and published by Tin
Research Institute (32 pp.) is
available free of charge on appli-
cation to: Tin Research Institute,
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— Pure phenolic, modified phenolic and non-phenolic type resins;
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PLYOPHEN — Laminating resins — ESTER GUM;
DEHYDROL — Dehydrated castor oil; CHEMICAL
COLORS — Organic and Inorganic.



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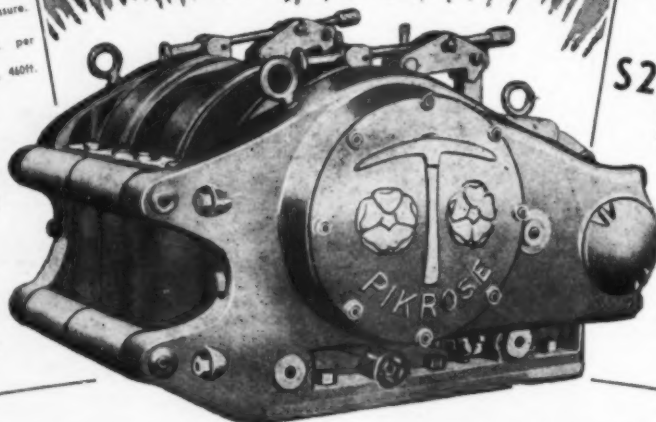
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S1 7 B.H.P. with Air at 80 lbs. Pressure.
Direct Rope Pull, 1,400 lbs.
Average Rope Speed, 152ft. per
minute.
Rope Capacity of each Drum, 400ft.
of 1/2in. Diameter Rope.

S2 15 B.H.P. with Air at 80 lbs.
Pressure.
Direct Rope Pull, 2,500 lbs.
Average Rope Speed, 220ft. per
minute.
Rope Capacity of each
Drum, 300ft. of 1/2in.
Diameter Rope.

S3 40 B.H.P. with Air at 80
lbs. Pressure.
Direct Rope Pull, 5,000
lbs.
Average Rope Speed, 220ft. per minute.
Rope Capacity of each
Drum, 300ft. of 1/2in.
Diameter Rope.

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S2 15 H.P. Nominal Developing 25 H.P.
Direct Rope Pull — 2,500 lbs. Normal,
3,500 lbs. Overload.
Average Rope Speed, 220ft. per
minute.
Rope Capacity of each Drum, 300ft.
of 1/2in. Diameter Rope.

S3 35 H.P. Nominal
Developing 75 H.P.
Direct Rope Pull — 5,000 lbs.
Normal, 8,450 lbs. Overload.
Average Rope Speed, 220ft. per
minute.
Rope Capacity of each Drum,
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Rear-mounted motor giving compact design on a practically square base. Great mechanical strength and rigidity of construction. Gears cut from heat-treated high-tensile steel blank with extra wide faces. Clutch Bands of increased width to ensure less heat generation and longer life. Rope Guide Rollers robust in design and permanently lubricated. Ball roller and needle roller bearings throughout.

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sity at Canberra, covering a Metropolitan-Vickers Mass Spectrometer valued at more than £10,000.

This device is one of the special products produced by Metropolitan-Vickers Electrical Co. Ltd. in England for use in physical research. The device is readily adaptable to major classes of research problems concerned with isotopes, gases and reaction kinetics. It will be a unique piece of apparatus in Australia.

Another unusual piece of apparatus recently ordered from A.G.E. is a Metropolitan-Vickers Time Interval Meter, which is to be supplied to the Newcastle City Council.

This device is designed for measuring extremely small intervals of time. The Newcastle City Council propose to use the Time Interval Meter in conjunction with relay testing equipment.

IMPROVED "FLEETWELD" ELECTRODE.

Improved operating features for the 21 year old veteran of the Shielded Arc process. "Fleetweld No. 5", are announced by the Lincoln Electric Company (Australia) Proprietary Limited, of Alexandria, N.S.W.

"Fleetweld 5", an A.W.S. E6010 Class electrode which operates on direct current, is renowned for its high melt off rate, ease of slag control, and deep penetrating properties.

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Metallurgical Blast Cupola

New Plant Has Interesting Characteristics

Original conception of the melting unit to be described evolved from a slagging gas producer blown with a high-temperature blast, installed in 1925 by a French technician. This plant operated from 1925 to 1935 and generated 200,000 cu. m. of gas per 24 hours, which was utilized for operating a glass melting furnace. This producer used a fuel with a high ash content which also was ferruginous and it was observed that liquid iron ran at the bottom of the gas producer with the slag. This suggested the idea of adding some steel scrap to the burden of the producer and the result was a production of gas as the main product and of cast iron as a by-product.

BY progressively increasing the additions of metallic charges the plant operated somewhat as a cupola and produced cast iron as the main product and gas as a by-product. An experimental plant of this kind was erected in a small foundry, and this was followed by a larger plant installed in a scrap dealer's yard.

Immediately after the war all foundries were faced with shortage of pig iron, since blast furnaces were used to make steel-making iron in preference to foundry iron. It was thought that if the plants referred to, when operated by non-foundry technicians, could produce so-called "wild" iron, then the plant was susceptible to improvement, and modification to give a proper industrial foundry production, and to solve the problem of commercially producing foundry iron which could be cast direct from a steel scrap charge. The iron to be made was for making centrifugally cast iron pipe without any heat treatment before use.

After many months of adjustment and perfecting, reports Robert Doot in "The Foundry," the operation of plant which has a capacity of about 5 tons per hour, became an industrial proposition. For more than a year, with a melting unit having a diameter of 850 mm. (33.5 in.) between tuyeres, the output of iron for pipe was 1,200 metric tons per month average.

Plant characteristics are as follows: The cupola is cooled externally by running water and the tuyeres also are water-cooled. The charging door is closed and about 35 per cent. of the gas is passed to the blast heaters; the remainder is available for various requirements in the foundry. The blast is heated by passing through three clusters of tubes heated externally by the stack gases. A dust catcher placed between the cupola and the recuperator retains the larger impurities.

This plant permits production of metals which have very different properties from those of the materials charged, as the latter undergo marked physico-chemical changes. These are due to the following factors:

HAS REDUCING ATMOSPHERE.

The melting zone, confined to a short distance above the tuyeres, constitutes a reducing atmosphere and operates at a very high tem-

perature. The metallic charges reach this zone at a relatively low temperature, are rapidly melted, pass through the reducing zone at a high temperature, and then through a deep and hot slag.

A second important feature is that only the materials charged enter the slag. In a normal cupola the slag reacts but little because of its relatively low temperature. Furthermore, in the new plant, slag dilution by the wall lining does not exist, since the refractory hardly wears. The high temperature attained permits production of certain slags of high melting point which, in a normal cupola, would cause difficulties, such as bridging, etc.

The features referred to previously clearly indicate that with this plant it is possible to under-

take metallurgical operations which will finally give any particular iron whose composition is compatible with the slag it passes through according to the laws of chemical equilibrium.

Owing to the reducing atmosphere in the furnace, there are no metallic losses. Careful analyses show that in the slag there is less iron and manganese than is introduced in the coke ash. The problem of silicon loss is a little more complex and will be referred to later.

The iron is obtained at such a high temperature (above 2,732 deg. F.) that it is possible to produce easily from a single mix a series of special irons by appropriate inoculations made at the spout of the cupola or even in a mixing ladle under the cupola spout.

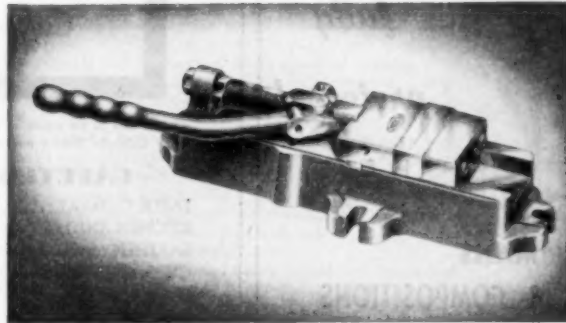
The following advantages relate more particularly to the economies of the process: Low quality coke can be used—that is, high ash or other types—and oxidized metallic materials can be used.

Monthly production capacity is high, as no repairs are needed. Economy in both raw materials and labour for repair work is a not inconsiderable factor.

Since the reactions take place at a high temperature, they are much more rapid; consequently the melting unit is quite sensitive to operational phases. Homogeneity of the raw materials charged plays an important part, especially non-metallic materials such as coke ash and limestone. From the economic point of view, it should be pointed out that,

(Turn to page 61.)

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(Continued from page 59.)
while it is possible to do without a man who can block a tap-hole, it is necessary to have a relatively more competent supervisory staff. The plant is markedly more expensive than an ordinary cupola, and it requires the use of a much more important range of control instruments. Briefly, what usually comes under the term of melting costs is higher than in an ordinary cupola.

MATERIALS CHARGED AND ANALYSES.

Iron ore can only be charged into the cupola after special preparation on which tests are now being carried out, and the cheapest raw material is steel scrap.

Carbon can be charged as coke of any type, alone or with an addition of anthracite. By taking into account such factors as blast temperature, quality and quantity of the fuel, and the quantity and composition of the slag, the carbon content can be controlled at will. It is possible to start off with a charge of 100 per cent. steel and produce iron with 4 per cent. carbon. On the other hand, it is also possible, by altering the operating conditions, to produce low-carbon irons from an initial charge of high carbons.

Phosphorus can be introduced either as high-phosphorus cast iron scrap or as phosphates, either natural or in the form of basic slag. It passes completely in the iron.

Silicon is usually introduced as ferrosilicon. Sometimes, however, it is cheaper to add it as high-silicon iron scrap and thus reduce the charge of steel scrap.

Usually there is sufficient manganese in the normal charge but, if not, ferromanganese is added.

Sulphur comes from the fuel and the scrap charge; it can easily be reduced by means of a suitable slag.

Using a charge of approximately 170 kg (375 lb.) of coke per metric ton of iron, the production of gas is equal to 100 kg (220 lb.) of coke per ton.

It cannot be too strongly stressed that the irons made with the metallurgical blast cupola are totally different from those made by the ordinary cupolas, be they hot or cold blast. The fluidity, or capacity of the metal to fill the mould, is better for any given temperature or composition. Three examples are cited below of the irons made; they are by no means exhaustive.

IRON FOR SPUN PIPE.

In normal cupola practice it is impossible to add steel to the charge if annealing of the pipe is to be eliminated. Moreover, it is difficult to use less than 60 per cent. of pig iron. The metallurgical blast cupola, for the produc-

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Re-set "start-stop" push buttons, for local control, are fitted and specially sealed . . . "Start-stop" push buttons are omitted for remote control . . . Screwed conduit entries are provided at the top and bottom of the case.

Distinctive features—as in the indoor totally enclosed type—include: Positive Overload Protection . . . Undervoltage Protection . . . Easy Installation . . . Long Operating Life . . . Safety for the Operator . . . Low Maintenance Costs . . . Adaptability.

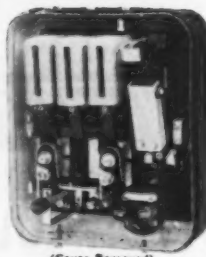


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tion of the same class of iron, uses for the charge only steel and iron scrap.

HIGH STRENGTH CAST IRON.
Such irons are usually made from charges of the following types: Coke, 15 to 17 per cent.; limestone, 5 to 8 per cent.; Fe-Si (10 per cent.), 15 to 20 per cent.,

and steel scrap, 80 to 85 per cent. The chemical composition is of this order: TC 2.8 to 3.2 per cent.; Si 1.8 to 2.3 per cent.; Mn 0.5 to 0.8 per cent.; S 0.05 to 0.08 per cent.; and P 0.05 to 0.10 per cent.

MECHANICAL PROPERTIES.
Shear strength 30 to 40 kg. The brinell hardness generally varies

from 190 to 250 according to the carbon and silicon contents. It should be pointed out, in this connection, that the irons are but slightly sensitive to section thickness. In numerous castings, for a hardness of 205, at the centre position, a hardness of 200 has been obtained at the periphery. This explains why with a charge of

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Rundle St., Adelaide. Western Aus-
tralia: Associated Distributors, 600
Hay St., Perth.

the type referred to previously, it is possible to cast parts of very different cross-sectional thickness, while still maintaining a homogeneous structure.

In unetched specimens very fine and evenly distributed graphite is revealed in metallographic examination. Etching shows a matrix of very fine pearlite. This essentially pearlitic structure is one of the salient characteristics of this type of iron. It confers upon castings outstanding properties and makes them particularly resistant to wear.

CORROSION RESISTANT METAL UTENSILS FOR HOSPITALS.

The Standards Association of Australia announces the issue of a Specification for Corrosion Resistant Metal Utensils for Medical and Surgical Use, as Australian Standard No. 10, Part 6, Section 7.

The specification has general clauses dealing with types, materials, manufacture and finish, dimensions, gauges of metal, tolerances, marking and identification, and standard samples.

Twenty-five different types of utensils for medical or surgical use are listed, with special requirements as to characteristics or construction for each. Special attention has been given to simplification of ranges and provision of progressive steps in sizes in order to eliminate unnecessary variations of size and type without restricting the availability of suitable sizes or types for efficient use.

Though any suitable corrosion resistant metal may be used under the specification, at present, stainless steel and monel metal are the metals normally used. Notes on care and protection of these two metals from injurious chemical reagents met with in hospital practice are provided in an appendix for general guidance.

Copies of the specification are on sale at the Headquarters of the Standards Association of Australia, Science House, 157 Gloucester Street, Sydney, and from branch offices in all capital cities of the Commonwealth, and Newcastle, N.S.W.



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"TARGETS FOR MANAGEMENT."

Four internationally famous speakers will outline "Targets for Management" at a Conference, arranged by The Australian Institute of Management, Melbourne Division, on March 8.

The speakers and their subjects are:—

Mr. Alvin E. Dodd, Honorary President, American Management Association—"At What Should Management Aim?"

Miss Betty Sharp, Deputy Director, Institute of Personnel Management, England—"Management Objectives—Good Personnel Policy".

Mr. R. G. Menzies, Prime Minister of Australia—"The Rapidly Expanding Field of Administration".

Professor Marcus Oliphant, Director of School of Physical Science, Australian National University—"Administration of Scientific Research".

Mr. Dodd was vice-president of the American Management Association from 1934 until 1935 when he became president. In 1948 he was appointed honorary president. He was responsible for building A.M.A. up to the vital force it now is for shaping management, thought and standards. Mr. Dodd has been brought to Australia at the invitation of the Commonwealth Government to pass on to Australian industry some of the secrets of America's great productivity.

Miss E. B. Sharp, O.B.E., served ten years as secretary to the Institute of Personnel Management, England, before taking up her present appointment. During that time the membership of the Institute was quadrupled and Miss Sharp played a large part in the expansion and in coping with the many problems of the post-war period. Since last April she has

toured extensively in the United States, Canada and New Zealand.

"Targets for Management" is the general theme of the Conference. Problems of administration in both public and private fields of enterprise will receive particular study.

This will be the tenth one-day Top Management Conference arranged by the Institute. It will be held in the Union Theatre, University of Melbourne, and will comprise a morning session commencing at 9.30, luncheon and afternoon session.

DUTY LIFTED ON STEEL PRODUCTS.

The Federal Government has decided to allow the admittance to Australia free of duty of a number of items shipped before June 30 next.

The Minister for Customs (Senator O'Sullivan) said this recently.

He said the concession had been made with the concurrence of the British Government.

The items are: Barbed wire, gas and water piping (otherwise classifiable under tariff items 152 (A) or 152 (B) (2)), iron and steel angles, rods, bars, beams, channels, joists, girders and rolled section tees (whether further fabricated or not), iron and steel plates and sheets other than stainless steel plates and sheets, iron and steel wire, including fencing wire, and wire netting.

Senator O'Sullivan said the demand for steel products and fencing materials was still far in excess of production from Australian or British sources.

The tariff concession was being granted to keep the cost of these goods to users at the lowest possible level.

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PATENT & TRADE MARK NEWS

PATENT SPECIFICATIONS
ACCEPTED

COUPLINGS FOR FLEXIBLE
HOSE.

138,567.—J. H. Millar.

A hose coupling in which an end load carrier is arranged around the insert or spigot and within a bared end portion of the reinforcement of the hose and grips this bared end portion against the outer sleeve or ferrule.

DRIVE MODULATING MECH-
ANISM.

138,696.—H. Auger.

Drive modulating mechanism for moving a load from one position of rest to another such position comprising a mobile member adapted to be connected to the load and also to a fixed anchor by means permitting transitory movement of the mobile member relatively both to the load and to the anchor, a coupling constituting one of such connections being constrained to follow a curved path on the mobile member start-

ing and finishing adjacent to the other connection, whereby when the coupling is caused to traverse this curved path at constant speed with corresponding transitory movement of the mobile member under restraint of the other connection, the load becomes displaced with respect to the anchor at low initial acceleration and final deceleration.

ANTI-SHRINKING TREAT-
MENT OF WOOL.

138,699.—M. Harris, A. M. Sookne, L. E. Fourt, C. Harris, formerly trading as Milton Harris Associates.

A method of treating woollen materials which comprises contacting the material with an alkaline hypochlorite solution containing from about 1% to about 6% available chlorine for a period of from about one to about sixty seconds and immediately thereafter eliminating the hypochlorite from the material.

SCREW DRIVER WITH
INERTIA MEMBER.

138,698.—S. Skamsner.

A screw driver, including an inertia member mounted with a driving connection on the shank

and adapted to be slidably adjusted along the same.

The method of forming a screw driver blade for a screw driver having an inertia member to which high torque may be applied, including the steps of forging one end of a rod of hot rolled steel between tapered surfaces so that a fan-shaped fibre structure is obtained, and trimming the fan-shaped forging to give a screw driver blade that is narrower at its tip than at the part adjoining the shank.

HEAVY DUTY GEAR BOX.

138,701.—Transport Equipment Co. (Aust.) Pty. Ltd.

A heavy duty gear box consisting of a drive transmission shaft mounted for rotation in bearings within an enclosing casing from which the outer or upper end of said shaft extends and is adapted to receive a drive gear thereon or to be otherwise connected to an article to be driven; a worm wheel on said drive transmission shaft meshing with a worm pinion on a worm shaft mounted for rotation across said casing; a drive device such as a gear, pulley or the like affixed to said worm shaft on either side of the said

worm pinion; a power shaft driven from a power unit or the like and also mounted for rotation in said casing alongside said worm shaft; a drive device such as a gear, pulley or the like rotatably freely mounted on said power shaft opposite each of the said drive devices on the said worm shaft and drive connected therewith; and a pair of clutch devices mounted on said power shaft, one alongside each of the rotatably free drive devices adapted to engage the related drive device with the said power shaft, such clutch devices having connection to common operating means, the arrangement being such that they are alternately engaged or disengaged as and for the purpose herein set forth.

Explanatory Note Only: The invention has been devised to provide apparatus which is of sturdy and efficient form adapted to take great reverse or forward load impact, is simple and easy to operate, and is completely enclosed, and wherein driving movements in

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either direction, that is "clockwise" or "anti-clockwise", can be readily obtained.

ROTARY BROADCASTER.

158,706.—G. O. Hoffstetter.

The combination with a rotary broadcaster of a shield spaced about said broadcaster, means supporting said shield, said shield including a plurality of angularly related plates, and said supporting means including means for adjusting the angular relation of said plates to the vertical to thereby regulate the lateral discharge, of the material.

FLY-HOOK HOLDER.

158,704.—W. T. Neiman.

A holder for a fish fly-hook, comprising a member having a hook-receiving slot and a spring, formed from flat metal, mounted on the said member with one end portion of the spring disposed within the said slot so that it bears resiliently against one face of the slot, the arrangement being that a hard metal portion of a fish hook can be inserted between the said spring and the

said face of the slot, the said face of the slot being of a material slightly softer than the said hard metal portion of the fish hook, whereby the fish hook will be retained between the spring and the said face of the slot.

A holder, in which the material slightly softer than the hard metal portion of the fish hook to be held, is a polymerised resinous plastics material.

MOULDABLE COMPOSITIONS AND CORES.

158,705.—Amalgamated Wireless (A/asia) Ltd.

A core composition comprising a filler and a binder, said binder containing a thermo-setting resin and a member of the group consisting of alkylene glycols, substituted alkylene glycols, polyalkylene glycols said compositions having been compressed into a rigid body and subjected to heating sufficient to harden the composition.

A magnetic core composition comprising a sub-divided ferromagnetic material, a binder containing a thermo-setting resin, and a member of the group consisting of alkylene glycols, substituted alkylene glycols, and polyalkylene glycols.

TENTER CLIPS.

158,544.—J. Dugler.

A tenter clip for treating fabrics, comprising a plurality of bars forming a base member and in parallel spaced apart relation perpendicular to the location of the selvage of the fabric to be treated, the upper surface of said bars being substantially convex shaped, a body member, a shaft carried by said body member and disposed parallel to the selvage of the fabric, a faller rotatably mounted on said shaft and having a plurality of teeth, said teeth being in alignment with said bars and having convex shaped end surfaces for co-action with said first mentioned convex surfaces of said bars, whereby the contact between said



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surfaces of the teeth and bars is substantially a linear one, and means for urging the fabric into the spaces between said bars before the clip is closed.

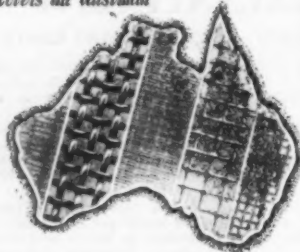
NEW TYPE ELECTRIC CABLES.
158,539.—Cable Makers (Australia) Pty. Ltd.

An electric cable of the type having a core or the like of elastic electrically conductive material in contact with an earthing conductor and with an insulated power conductor or conductors, characterised in that the earthing conductor is arranged concentrically around a flexible core or centre of textile material, plastic, rubber or the like.

TRAILING AXLE SUSPENSION.
158,546.—Transport Equipment Co. (Aust.) Pty. Ltd.

Suspension means for the attachment of trailing axles to road vehicles consisting of a pair of rocker arms one of which is adapted to be fitted on either side of the road vehicle behind the driving axle of said vehicle, such rocker arms being each pivotally mounted between their ends in or on a frame bracket affixed at each side of said vehicle, each said rocker arm being connected at its inner end to the rear and free end of the said vehicle, while the other and rear end of each said rocker arm is

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formed as a housing to receive a bearing block assembly therein in a rearwardly removable manner, such bearing block assemblies being adapted to mount a trailing axle therein, and a removable bridge plate fitted to said housing to fasten the said bearing assemblies in place.

VEHICLE FOR HANDLING DRY CEMENT.

158,547.—Transport Equipment Co. (Aust.) Pty. Ltd.

A vehicle for hauling and discharging dry cement and the like, comprising a body mounted on a chassis provided with wheels, such body having one or more filling openings furnished with

closure means, and formed to precipitate and feed the contained material towards the lower portion thereof; one or more troughs positioned in the bottom of said body and extending longitudinally thereof; discharge means consisting of a worm or feed screw mounted in each trough and carried on a shaft set in bearings and arranged to feed the said material from one end of said body to one or more discharge outlets at the other end thereof; drive means at the non-discharge end of said shaft connecting with a power drive; and a control valve associated with said discharge outlet or outlets for closing and regulating the extent of discharge.

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SURFACING PANELS FOR WALLS.

138,550.—B. & B. Concrete Co. Ltd.
A construction of concrete or brick wall comprising the employment of surfacing panels, each of which is formed with a web or rib, or of a number of webs or ribs, extending the length of the panel's back face, and the securing thereof to the wall's surface in the building of the wall by arranging the webs of a row of end to end panels between two concrete layers or courses of bricks, so that the web row becomes an integral part of the wall, characterised in that each web or rib is formed to extend from a point a distance back from one end and projects a corresponding distance beyond the other end, thus providing that upon each panel being disposed end to end in the building of the wall, the web of one panel will overlap the inner surface of the next panel to provide an interlocking joint therewith.

MOBILE SPRINKLER SUPPORT.

138,552.—R. Turnbull, Vic.
In a mobile support for lawn or garden sprays, the combination with water supply and spray fitting of a base plate, divergent arms extending therefrom, an axle secured in the said arms, a roller on each end of the said axle, a transverse bar, brackets pivotally secured thereto and rollers mounted in the said brackets.

MACHINE FOR SHOE-UPPER CONFORMING.

138,554.—The British United Shoe Machinery Co. of Australia Pty. Ltd.

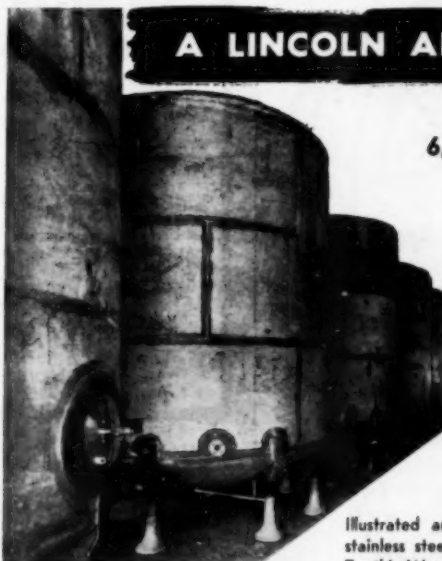
A machine wherein there is provided a work-positioning device arranged to be engaged by work placed upon said work-supporting device as the work is initially offered to the machine and thereby to locate the work in appropriate position for action thereon by the wipers, said work-positioning device being arranged to retain its locating engagement with the work until the relative movement between the wipers and the work-supporting device in a direction heightwise of the shoe takes place.

LIQUID DISPENSING APPARATUS.

138,555.—Associated Motorists Petrol Co. Ltd.

Apparatus for use in delivering liquid from containers into which compressed air is injected for the purpose of ejecting liquid therefrom, and comprising a liquid discharge pipe provided with a dispensing head having a valve controlled liquid outlet, a valve controlled compressed air inlet, and an air transfer pipe to the container, characterised by the provision on said head of a valve chamber block, containing a chamber for and a compressed air admission control valve, adapted to be placed in communication with a source of compressed air and a further chamber open to the chamber containing the compressed air admission valve, and also open

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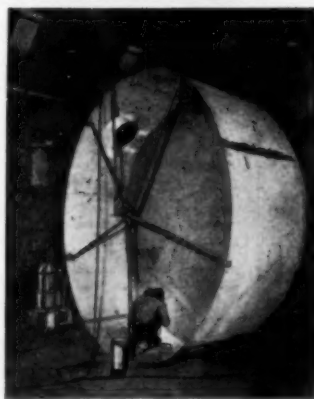
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THE WELDING MACHINES:
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Illustrated are a few of the many 6,750-gallon capacity stainless steel brewery tanks at present being installed at Tooth's Waverley Brewery, Sydney. The tanks, constructed of $\frac{1}{4}$ " plate, are 14' in height, 10' 7" in diameter, and weigh $2\frac{1}{2}$ tons each.

The manufacture of these vessels, in accordance with the provisions of the Boiler Code No. CB1 and CB10, requires a high standard in the quality of welding. Lincoln Stainweld electrodes, produced under controlled conditions from materials of the highest quality, are selected to meet joint requirements in fidelity of analysis, freedom from defects and excellent physical properties.

Top left—Five of a battery of 24 stainless steel tanks installed in extensions to Waverley Brewery. Capacity of each tank is 6,750 gallons.

At left—Part of the welding sequence. There are 265 feet of welded joints in each tank.

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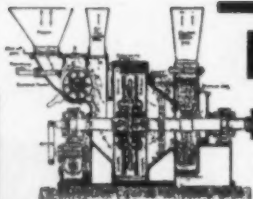
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to atmosphere, adapted to be placed in communication with the air transfer pipe, said further chamber containing a Venturi arrangement, and a non-return valve, and means on said head for operating the valve of the liquid outlet and the air admission control valve.

TOY-CALCULATING DEVICE. 138,556.—E. E. Keegan.

A toy calculating device comprising a system of links two of which are movable to different numbered positions in or on a slot or guide, the system being such that, for every different position of one or both of the said two links relative to the slot or guide, a point of one of the links of the system, or an extension of the said links, occupies a different position, the different positions of the said point being identified by numerals indicating an arithmetic relationship between the numbers of the positions of the said two links.

FLUID-TIGHT ROTARY SEAL. 138,707.—Crane Packing Co.

In a rotary seal having a washer with a radially disposed sealing surface thereon and a rigid support for the washer having an L-shaped radial cross-section, means for effecting a flexible fluid-tight seal between the washer and support comprising an apertured diaphragm having its inner peripheral region in contact with the washer, a cylinder surrounding the washer and spaced radially therefrom, said cylinder having an inwardly extending flange in contact with the one side of the outer peripheral region of the diaphragm, a spacer ring nested within the cylinder between the flange and support and contacting the other side of the outer

peripheral region of the diaphragm, a gasket located between the spacer ring and support, means for drawing the flanged ring against the support to compress the diaphragm, spacer ring and gasket between the flange and support thereby to effect a fluid-tight seal between the outer peripheral region of the diaphragm and support, and means for compressing the inner peripheral region against the washer to effect a fluid-tight seal between the washer and diaphragm.

STACKING BALED HAY. 157,780.—E. H. Brinkworth, N.Z.

An apparatus for use when loading and stacking baled hay and the like, comprises the combination, with a motor vehicle of a power operated endless belt conveyor hingedly mounted in a framing on the vehicle, so that its free end will extend outwardly from the vehicle, hand operated winch means with shaft and handle, to work cable enabling the conveyor to be lowered to rest on the ground or to be raised to an elevated position and means such as pick-up shoe and cable associated with the front end of the conveyor to engage and pick-up a bale and move it onto the conveyor.

WIND-DRIVEN GENERATOR. 158,798.—W. B. Arbuthnot.

A wind-driven electricity generating apparatus, comprising an up-right tubular mast, an electric generator rotatably supported upon the mast and operable by a wind-actuated propeller, adjustable control means for angularly moving the electric generator and propeller in response to wind action and adapted in an operative position to maintain the propeller in the driving position and



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in an inoperative position to maintain the propeller idle, resilient means urging the control means to the operative position, flexible retractable means extended through the tubular mast and connected to the control means for moving the latter from the operative position to the inoperative position, and current collecting means maintaining a constant connection of the electric generator with the supply circuit.

CALCINING LIME-BEARING SLUDGES.

138,706.—The Dorr Co.

The process which comprises simultaneously and in the same place fluidizing, nodulizing and calcining lime-bearing sludge solids to yield directly substantially dust-free nodules of lime.

TRADE MARK APPLICATIONS

97,764. "Califurniture." Furniture.—Brown-Saltman (Aust.) Proprietary Limited, 428 George Street, Sydney, N.S.W.

97,122. "Vacu-Blast." Blast cleaning appliances and parts therefor.—Vacu-Blast (Aust.) Proprietary Limited, 360 Collins Street, Melbourne, Victoria.

97,091. "Colonial Weave." Cotton yarns.—Pacific Chenille-Craft Limited, 220 Henderson Road, Alexandria, Sydney, N.S.W.

97,692. "Glacier." Piece goods composed wholly or mainly of cotton.—Rainwear Proprietary Limited, 19-27 Ireland Street, West Melbourne, Victoria.

97,789. "Warwilk." Piece goods wholly or mainly of cotton.—Thos. G. Hill & Company Limited, 73-75 Whitworth Street, Manchester 1, England.

97,906. "Fortune." Brushware.—S.A. Brush Co. Limited, Botting Street, Albert Park, South Aust.

92,710. "Moldex." Made-up plastic articles, being kitchenware, containers, plugs, handles, strips, corner pieces, drawers, knobs, switch parts, circuit breakers vacuum cleaner parts, desk calendars, food containers, packaging plastic boxes of all descriptions, covers, housings, containers for electric light fittings and household sundries and accessories.—Moldex Limited, 414 Collins Street, Melbourne, Vic.

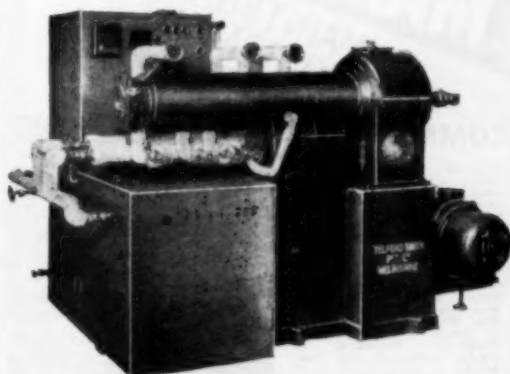
97,000. "Kooba." Woollen and worsted yarns.—Alexandria Spinning Mills Pty. Limited, 30 Grosvenor Street, Sydney, N.S.W.

93,042. "Velvafelt." Felt made from wool and or mixtures of wool with other substances.—Felt and Textiles of Australia Limited, "Feltex House," 261 George Street, Sydney, N.S.W.

97,460. "Talexite." Anti-corrosive paints.—Taubmans Limited,

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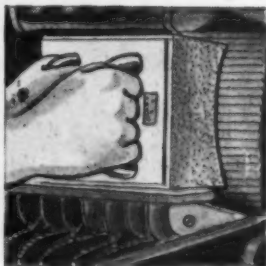
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Mary Street, St. Peters, Sydney, N.S.W.

95.116. "Alba." Unwrought and partly wrought metals used in manufacture included in this class, boiler plates.—Alba, West Bohemian Engineering Works and Foundries National Corporation, Horovice, Czechoslovakia.

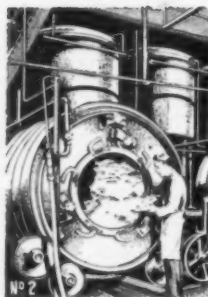
93.120. "Ferroxcube." Metal compounds, in particular including metal oxides, having magnetic properties used in science and industry, magnetic cores for use in

electrical apparatus and instruments (including wireless), telephone, telegraph, signalling and scientific apparatus.—Philips Electrical Industries of Australia Pty. Limited, 69-73 Clarence Street, Sydney, N.S.W.

97.934. "Resolyn." Wire, including enamelled wire.—Olympic Cables Limited, Mephan Street, Footscray, Victoria.

96.964. "Kelvinette." Refrigerators and refrigerating machinery.—Kelvinator (Australia) Limited,

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97.728. "Loaderdoser." Earth working and construction machines and implements, including tractor loaders.—C. W. F. Hamilton and Co. Limited, Lunna Road, Middleton, Christchurch, New Zealand.

97.950. "Gravic." Lawnmowing equipment and agricultural implements, and all other agricultural and horticultural machinery and parts of such machinery.—Motor Tractors Pty. Limited, 380-385 Wattle Street, Ultimo, Sydney, N.S.W.

97.884. "Alumain." Electric cables.—Johnson & Phillips Limited, Victoria Way, London, S.E.7, England.

97.846. "Arcturus." Products and preparations for illuminating, heating, lubricating and fuel and power generating purposes, including greases.—Caltex Oil (Australia) Pty. Limited, 62 Margaret Street, Sydney, N.S.W.

97.848. "Hydra." Products and preparations for illuminating,

heating, lubricating and fuel and power generating purposes, including greases.—Caltex Oil (Australia) Pty. Limited, 62 Margaret Street, Sydney, N.S.W.

TENDERS FOR PATENTS

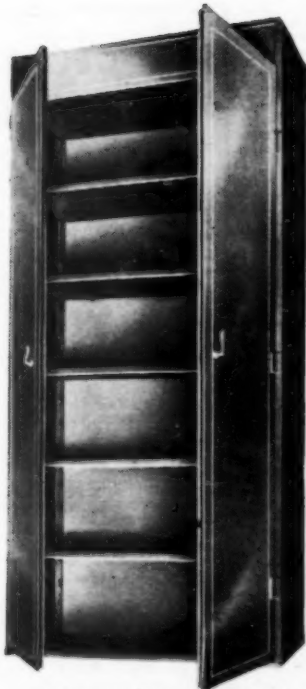
"AUDIBLE WARNING SIGNAL FOR VEHICLES."

Commonwealth Patent No. 111,730. The Patentees of this invention desire that it be adopted and brought into commercial use and manufacture in Australia, and invite inquiries to these ends from persons and firms interested.

Address inquiries to
SPRUSON & FERGUSON, 18-18 O'Connell Street, Sydney.

NOTICE IS HEREBY GIVEN that the proprietors of Australian Patent No. 126,960, dated April 17, 1944, for "Improvements in or relating to Narrow Fabric Multiple Web Looms," are prepared, under the provisions of The Patents Act, 1903-1946, to satisfy any demand and all requirements of the public respecting the said invention.

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Looping-in-Bases, Bronze (File No. 50/5844). Oliver Manufacturing Co. Pty. Ltd., N.S.W., £304/10/-.

Batteries (File No. 50/5316). Reliance Batteries Service Co., N.S.W., £1,867/12/11; Geo. L. Thompson Pty. Ltd., £322/9/-.

Nickel (File No. 50/5225). Wright & Co., N.S.W., £319/4/-.

Mine Sweeping, Naval Type Winch, Mine Sweeping Davits and Pedestals, Rollers (File No. 50/5989). American Trading & Shipping Co. Pty. Ltd., N.S.W., £700.

Sliding, Black, Oxidised Buckles (File No. 50/5726). General Plastics Ltd., N.S.W., £211/15/-.

Lissapoi (File No. 50/5789). Imperial Chemical Inds. of Aust. & N.Z. Ltd., £279/1/8.

Siam Kapok (File No. 50/5714). Moonrise Pty. Ltd., N.S.W., £455.

Huckaback, 19½ in. Towelling (File No. 50/4693). Dri-Glo Towels Pty. Ltd., N.S.W., £239/1/3.

Laboratory Stills (File No. 50/5887). Wardrope & Carroll, £294.

De Laval Oil Purifier (File No. 50/5676). S.K.F. Ball-Bearing Co. (Aust.) Pty. Ltd., N.S.W., £242.

Tanks, Fuel, Assembly (File No. 51/82). Northern Spare Parts Co., N.S.W., £411/14/7.

Bracket and Table, combined (File No. 50/4573). Greenslade Milking M/Cs. (N.S.W. & Q'ld. Ltd.), £275.

"Tecalmit" Olympic Lubrication Battery (File No. 50/5508). Bennett & Wood Pty. Ltd., N.S.W., £679.

Insulating Cork Board (File No. 50/5881). T. H. West, N.S.W., £366/11/3.

Splicers (File No. C4/373/107). Melbourne Cine. Supplies Pty. Ltd., £93/11/1.

Rewinders, Film (File No. C4/373/107). Harmour & Heath, £89/1/4.

Radio Frequency Attenuator (File No. C4/316/134). Jacoby Mitchell & Co. Pty. Ltd., £58/12/8.

Transformers (File No. C4/307/300). Hilco Transformers, £176/5/-.

Lighting Sets (File No. C4/303/117). Bennett & Wood Pty. Ltd., £100/18/3.

Sparkling Plugs (File No. C-4/302/130). Leggetts Products Pty. Ltd., £100.

Bearing, Boiler (File No. C4/302/125). Replacement Parts Pty. Ltd., £84/6/6.

Spark Plugs (File No. C4/302/50). Leggett Products Pty. Ltd., £133/4/-.

Spark Plugs (File No. C4/302/50). National Automotive Service Co., £122/18/-.

System Boards (File No. C4/179/107). B. J. Ball Ltd., £180/12/6.

Pudding, Earthen Basins (File No. C4/175/216). Myer Emporium Ltd., £73/16/2.

Red Cross Blood Transfusion Giving Sets (File No. C4/174/62). F. H. Faulding & Co. Ltd., £117/10/-.

Spoons and Knives (File No. C-4/159/77). Mytton's Ltd., £112/16/3.

Enamelled Jugs (File No. C4/159/77). Briscoe & Co. Ltd., £106/2/9.

Manties, Radiator (File No. C4/159/77). T. S. Nettlefold & Sons Pty. Ltd., £82/8/-.

Unsweetened Condensed Milk (File No. C4/104/427). Nestle's Food Specialities (Aust.) Pty. Ltd., £76/2/11.

Wool and Cotton Drawers (File No. C4/255/25). Maryborough Knitting Mills (Cuttie) Ltd., £2,698/5/4.

Cap Leathers (File No. C4/254/20). W. Foster & Co. Ltd., £454/11/11.

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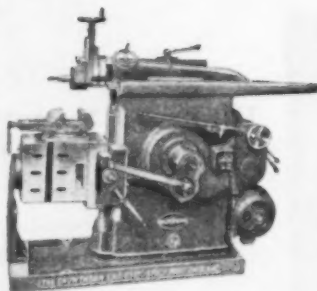
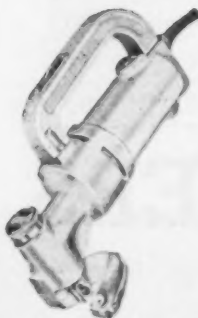


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Cloth, Khaki Berets (File No. C4/254/9). Beret Manufacturers Pty. Ltd., £28,917.

Cotton Cleaning Bags (File No. C4/250/146). C. & S. Industrial Textiles Pty. Ltd., £1,642/13/4.

Leather Brown Officers' Gloves (File No. C4/206/13). Gloria Glove Co. Pty. Ltd., £989/8/-.

Men's Leather Black Shoes (File No. C4/204/55). Whybrow & Co. Pty. Ltd., £12,371/12/-.

Black Leather Shoes, with Laces (File No. C4/204/48). Thomas Davies Pty. Ltd., £2,462/10/-.

Black Ankle Heavy Boots (File No. C4/203/36). McMurtrie (N.S.W.) Pty. Ltd., £4,147.

Soaps (File No. C4/183/35). J. Kitchen & Sons Pty. Ltd., £306/5/5; G. W. Pennell, £100; Dominant Chemicals Pty. Ltd., £248/10/-.

Detergent and Cleaner (File No. C4/183/32). Dominant Chemicals Pty. Ltd., £650.

Bread Boards, etc. (File No. C4/182/132). Rozelle Wood Products Ltd., £1,005/9/4.

Dyeline Paper (File No. C4/179/110). Harding & Halden Pty. Ltd., £930.

Flannel (File No. C4/259/114). Kelsall & Kemp (Tas.) Ltd., £1,994/13/9.

Annealing Furnace (File No. C4/300/27). R. G. Williams, £6,908.

Electric Flares (File No. C4/301/49). British General Electric Co. Pty. Ltd., £2,823/10/11.

Wheels (File No. C4/302/123). Australian Steel Split Pulleys Pty. Ltd., £275.

Mobile Cranes (File No. C4/306/27). Victorian Industrial Sales Service, £9,937/10/-.

Screwing Machine (File No. C4/313/332). McPherson's Ltd., £374/13/6.

Bicycles (File No. C4/314/14). Bennett & Wood Pty. Ltd., £5,977/0/9.

Stockpots (File No. C4/362/65). J. Curtin & Son, £1,712.

Latrines Canopies (File No. C4/366/191). A. G. Way & Co. Pty. Ltd., £1,197.

Bearing, Housing (File No. C4/371/302). Industrial Steels Ltd., £8,410/19/11.

Gunmetal Castings (File No. C4/371/356). Austral Brass Foundry, £8,505.

Alclad Sheet (File No. C4/371/430). Australian Aluminium Co. Pty. Ltd., £1,407/14/6.

Crockery (File No. C4/175/216). A. Lyne Browne & Co., £279/10/4.

Tea Cans (File No. C4/175/173). William H. Callaghan, £2,362/10/-.

Cork Slabs (File No. C4/177/70). Cork Industries (Aust.) Pty. Ltd., £648/17/8.

Meteorological Thermometer Screens (File No. C4/182/131). Johnstons Pty. Ltd., £87/10/-.

Serviettes (File No. C4/258/112). W. E. Bird Ltd., £117/10/-.

Table Cloths (File No. C4/258/112). Baldwin Agencies Pty. Ltd., £2,420.

Secondary Batteries (File No. C4/305/40). A. P. Sutherland, £73/12/-.

Special Plunger (File No. C4/313/303). A. W. Gaze, £98.

Refrigerators (File No. C4/317/35). Kelvinator (Australia) Ltd., £9,322/10/-.

(Turn to page 75.)

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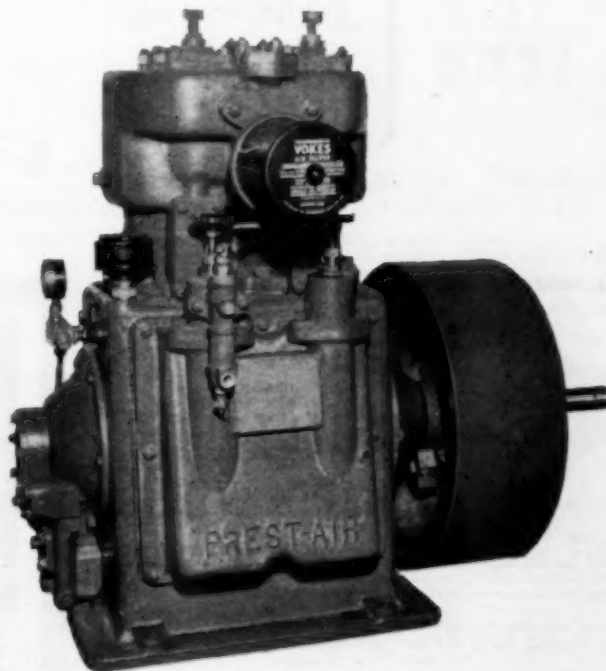
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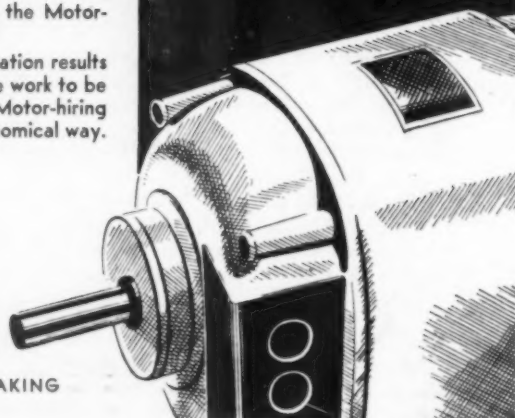
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(Continued from page 72.)

Single Throat Clamps (File No. C4/370/13). Paul & Gray Pty. Ltd., £220.

Tackle Blocks (File No. C4/370/13). Howard F. Hudson Pty. Ltd., £1,948/18/4.

Kelvin & Hughes Non-Resonant Suspension Dry Card Standard Compass; Kelvin & Hughes Vertical Card Steering Compass; After Steering Compass and Binacle (File No. 50/4172). National Instrument Co. Pty. Ltd., N.E.W., £444/10/-.

Buckets, with Lids (File No. 50/1285). Nock & Kirby Ltd., N.S.W., £348/13/1.

Taubman's Mercurial Anti-Fouling Grey (File No. 50/5847). Taubman's Ltd., N.S.W., £210.

Medical Equipment (File No. 51/150). Imperial Chemical Inds. of Aust. & N.Z. Ltd., £252/2/-.

Phosphor Bronze (File No. 50/4856). Norman W. Hutchinson & Sons Pty. Ltd., N.S.W., £375/1/8.
Seersucker, 48 in. Striped (File No. 50/5482). A. E. Greenwood, N.S.W., £344/8/10.

Seersucker Table Cloths (File No. 50/5482). Sargood Gardiner Pty. Ltd., £661/7/8.

Operating Tables (File No. 50/4644). Tubelex Co., N.S.W., £609.

Portable Tables (File No. 50/4904). Glinray Products, £207/1/10.

Mosquito Nets (File No. 50/5661). W. E. Bird Ltd., N.S.W., £1,095.

Medical Equipment (File No. 51/63). Elliotts & Aust. Drug. Pty. Ltd., N.S.W., £332/10/-.

Electric Wash Boilers (File No. 51/234). J. Curtin & Son, N.S.W., £547/10/-.

Gymnastic, W.R.A.N.S. Shoes (File No. C4/204/57). North Australian Rubber Mills Ltd., £418/5/6.

Brown Leather W.R.A.N.S. Gloves (File No. C4/206/20). Gordon Fashion Glove Manufacturers, £406.

Worsted, Khaki Socks (File No. C4/256/13). Interknit Hosiery Co. Ltd., £2,210.

Serviettes (File No. C4/258/112). The Myer Emporium Ltd., £488.

Galvanized Patent Steel Wire Rope (File No. C4/370/13). Australian Wire Rope Works Pty. Ltd., £327/19/-.

Aluminium Alloy (File No. C4/371/398). Australian Aluminium Co. Pty. Ltd., £738/1/11.

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McRobertsons Pty. Ltd., £200; Nestles Pty. Ltd., £300.

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Razor Blades, Repat. Hospital Canteen, Concord. A. D. Wilson, £217/10/-.

Soap, Repat. Hospital, Concord. J. Kitchen & Sons Pty. Ltd., £446/8/7.

Dental X-ray Unit, Repat. Out-Patient Clinic, Sydney. Watson, Victor Ltd., £317/10/-.

Fuel Oil, Prince of Wales Repat. Hospital, Randwick. The Australian Gas Light Co., £5,937/10/-.
(Turn to page 77.)

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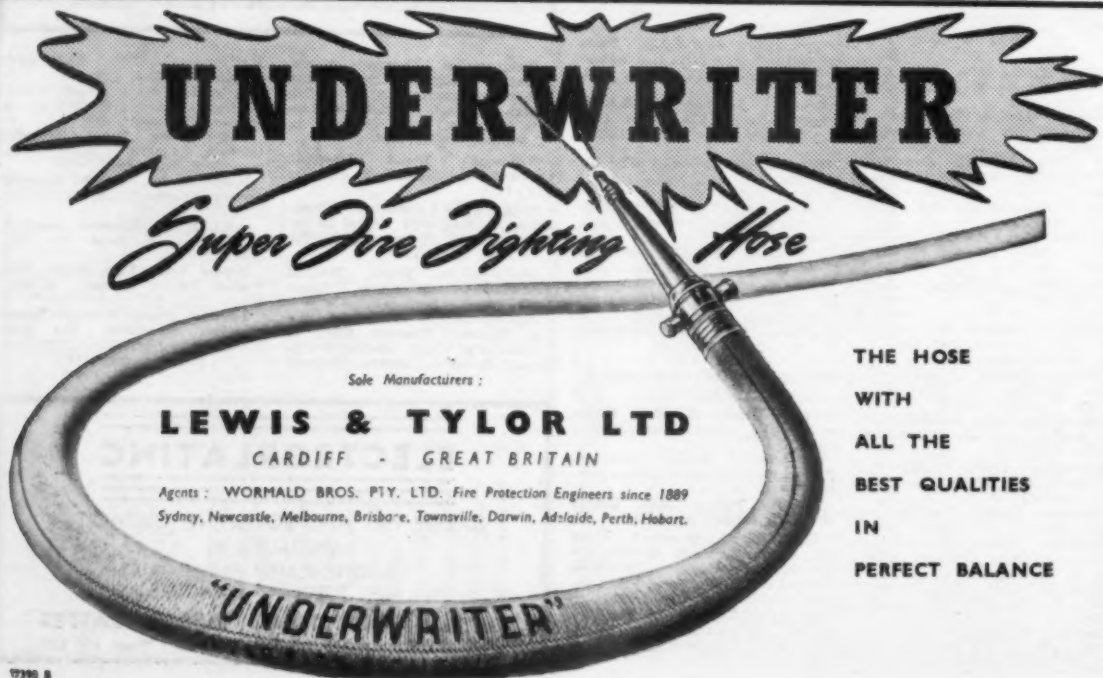
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(Continued from page 75.)
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(A.C.T.). Stewarts & Lloyds
(Aust.) Pty. Ltd., £3,343/15/-.

Compressed Air System, for
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Cabinet Refrigerator, for Cun-
derdin Migrants Centre. A. J.
Baker, £448.

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Mount Hawthorn Furniture Fac-
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Roll Crusher and Plate Feeder (40 ton per hour), for Coal (Spec. M.46). April 2.

Special Duty Pumps and Priming Ejectors (2), 1,500-gallon, for Ash Sluicing (Spec. M.45). April 2.

DEPARTMENT OF WORKS AND HOUSING.

Economiser, Grit Arrestor, Induced Fan and Associated Flues, Dampers, etc., for Ballarat. March 27.

Steel Roller Shutters (24), for Marrickville (Quot. 316). March 1.

Ventilating Units, Supply and Installation, for various Localities. March 6.

GOVERNMENT RAILWAYS DEPARTMENT.

Axlebox Brasses. March 6.
Transformers. March 13.

POSTMASTER-GENERAL'S DEPARTMENT.

Accumulator Plates and Separators (Sch. C.6523). March 13.
Jugs, Mild Steel Plate (Sch. C.6513). March 13.

M.F. Broadcasting Transmitters and Associated Equipment (Sch. C.6598). May 3.

Printed Forms, P.P. Series (Sch. C.6529). March 15.

Printed Publicity Matter (Sch. C.6526). March 8.

SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION.
Lathe—Swing, Sliding, Surfacing and Screwcutting, 12 in. (Spec. 215). March 2.

Shaping Machine, 18 in., complete with Electric Motor and Drive (Spec. 217). March 2.

Universal Milling Machine, complete with Accessory Equipment (Spec. 216). March 2.

Vertical Air-Conditioner (Spec. 210). March 2.

NEW SOUTH WALES

GOVERNMENT RAILWAYS DEPARTMENT.

Crane, 2 1/2 ton, with Electric Winch (Spec. CE-10,181). March 19.

Diesel or Petrol Overhead Loaders, Crawler Mounted, cap. bucket approx. 1/2 cub. yd. (Spec. CE-2657). March 21.

Diesel Truck Type Mobile Cranes, 6-ton and 10-ton (Spec. Nos. CE-2667 and CE-2668). March 21.

Diesel Mobile Cranes, 7-ton, with Caterpillar Tracks (Spec. CE-2669). March 21.
Electric Hoist Block, 1 ton (Spec. CE-10,182). March 19.

Front End Loaders, Petrol or Diesel, bucket cap. 1/2 cub. yd. (Spec. CE-2658). March 21.

Mobile Crane—Diesel - Electric, Petrol - Electric or Straight Diesel, cap. 6 tons up to 8 ft. (Spec. CE-2654). March 13.

Overhead Loaders, Diesel or Petrol, with Pneumatic Tyres, cap. bucket approx. 1/2 cub. yd. (Spec. CE-2656). March 21.

Steel (Sch. 22). Annual Supply from 1st July, 1951, to 30th June, 1952. Extended to March 7.

DEPARTMENT OF MAIN ROADS.

Concrete Mixers. Feb. 27.
Jacks. Feb. 27.
Jeep-Type Trailers. Feb. 27.
Pressure Water Tanks. Feb. 27.
Protection Angles. Feb. 27.

METROPOLITAN WATER, SEWERAGE AND DRAINAGE BOARD.

Concrete Mixers (20), 3/4 cub. ft. wet cap., pneumatic-tyred, trailer-

type, and 3 spare engines (P.T. 393). April 17.

Concrete Mixers (8), 15 cub. ft. wet cap., 5 fitted with Diesel Engines, and 3 with electric motors, and supply of 1 spare electric motor and 1 spare Diesel engine (P.T. 399). April 17.

DEPARTMENT OF SUPPLY.

Aluminium Alloy Sheet. March 1.

Earthenware Mugs, 100,000. March 9.

Regimental Hubs, Buttons and Badges. Feb. 27.

Rotary Hoe, 36 in. Feb. 27.
Soil Stabiliser Machine and Equipment. Feb. 27.

DEPARTMENT OF PUBLIC WORKS.

Chemical Feeders (3). March 9.
Circular Saw and Bench. March 2.

Food Slicer, Elect. Driven. Feb. 28.

Food Mixing Machine, Elect. Feb. 28.

Food Trolley, Elect. Heated. March 2.

Gas Oxygen Anaesthetic Machine. March 2.

Lightning Arresters. March 2.

Sterilising Equipment, Elect. Heated. March 2.

(Turn to page 79.)

NICHROME

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DEHYDRATING — VENTILATING
EXHAUST — DUST REMOVING

R. H. HALLIDAY

Engineer

Bowen and Andrews Sts., Adelaide

NEW TENDERS - Contd.

Welding and Cutting Plant
(Comweid or Sim.); Cutting Blow
Pipe. March 7.

STATE CONTRACTS CONTROL BOARD.

Elect. Light Fittings and Glass-
ware. Feb. 27.
Handles. March 6.
Incinerators. March 6.
Microscopes. Feb. 27.
Scientific Apparatus. Feb. 27.
Steel Cabinets. Feb. 27.
Steel Tables. Feb. 27.

MISCELLANEOUS.

Centrifugal Pumping Plants,
Electrically Driven (2), (Contract
W-18), for Shire of Shoalhaven.
March 26.

Motor Lorry, 5-ton, Petrol
Engine, fitted with 6 cub. yd. Tip-
ping Body with Underbody Hoist;
Crawler Tractor, 22-h.p., fitted
with Hydraulically Operated
Angle-doser Blade; Motor Lorry,
5-ton, fitted with Garbage Body of
12 cub. yd. cap. with Underbody
Hoist; Motor Garbage Vehicle fit-
ted with Closed Type Self-Loading
Garbage Body, for Municipality of
Botany. March 9.

♦ ♦ SEE ALSO ♦ ♦
"LATE OPEN TENDERS"

Wheel Type Tractor, fitted with
Front-End Loader, with bucket of
1 cub. yd. cap., for Municipality of
Cowra. March 5.

VICTORIA

DEPARTMENT OF SUPPLY.

Cork Slabs. Feb. 27.
Manchester Items. Feb. 27.
Mirrors. Feb. 27.

GOVERNMENT RAILWAYS DEPARTMENT.

Back Stripping Machine. April
11.

Copper Cable, 22KV. Feb. 28.
Foot Warmers. Feb. 28.
Fork Lift Trucks (Contract
58,687). March 28.

Power Proof Press, Hand-fed.
April 11.

Sand Papering Machine, Triple
Drum. March 28.

Universal Saw Trimmer (Con-
tract 58,704). April 11.

MELBOURNE AND METRO- POLITAN BOARD OF WORKS.

Plan Copying and Developing
Equipment. Feb. 27.

MELBOURNE HARBOUR TRUST.

Electric Cable, Rubber Insulated
Lead-covered, Armoured and
Served, with Cable Glands. Ex-
tended to March 2.

M.S. Sections and Plates, 200
tons. March 9.

(Turn to page 81.)

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SHEET METAL WORKING MACHINES

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This accurate small Milling Machine is designed for Tool Making and economical production of small parts, saving the time necessary for setting up larger machines.

THE SPINDLE runs in adjustable bearings and carries a three-step V-pulley giving 12 SPINDLE SPEEDS, having two-speed drive from motor. The Spindle is bored No. 2 Morse Taper and provided with draw bolt.

The prismatic over arm is easily adjusted and clamped, and the mandrel support bracket is bored and bushed with bronze.

The LONGITUDINAL FEED is driven by reversible V-pulleys and belts giving EIGHT SPEEDS controlled by adjustable knock-out.

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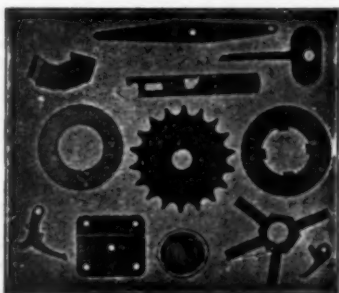
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NEW TENDERS - Contd.

STATE ELECTRICITY COMMISSION.

Aluminium Alloy Suspension Clamps and Saddles, Cast or Forged (Spec. 50-51/259). March 7.

Chemical Injection—High Pressure Drain, Blow Down, and Master Pressure Gauge Piping and Accessory Equipment (Spec. 50-51/230). April 4.

Current Limiting Reactors (Spec. 50-51/270). April 18.

Electrical Indicating and Recording Instruments, Switchboard-type (Spec. 50-51/260). April 18.

MISCELLANEOUS.

Tractor, Pneumatic-tyred, Petrol or Kerosene; Mower Attachment; Rotary Hoe Attachment; Set of Harrows (Tandem Disc), for Shire of Albion. March 5.

CURRENT TENDERS

The following tenders have appeared in previous issues and are still current.

COMMONWEALTH

POSTMASTER-GENERAL'S DEPARTMENT.

Communication System between Sydney and Melbourne (Spec. C-6157). Extended to April 17, 1951.

F.M. Radio Link Equipment, Portable (Sch. C.6494). March 6.

Labels, for Mail Bags (Sch. C-6505). March 6.

Light and Power Material (Sch. C-6506). Feb. 27.

Mechanics' Tools, Hammers, Files, Hacksaws, Drills, etc. (Sch. C.6496). Mar. 1.

Mirrors and Cases, for Cable Jointers (Sch. C.6514). March 1.

Outdoor Distributing Wire. (Sch. C.6491). Extended to March 1.

Physical Programme Line Equipment (Sch. C.6495). April 24.

Relays, 8000 Type (Sch. C.6490). April 2.

Tools, Leadworking and Measuring, etc. (Sch. C.6512). April 3.

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Tools, Leadworking and Measuring, etc. (Sch. C.6512). April 3.

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(Turn to page 82.)



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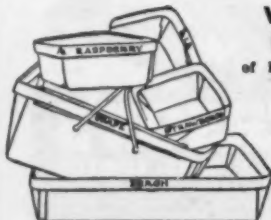
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CURRENT TENDERS — contd.

Insulated Copper Winding, Resistance and Fuse Wires (Sch. 326). April 3.

Mobile Elevating Platform Trucks (Sch. 328). Extended to March 6.

Underground Cable, 1,000 Volt Grade (Sch. 325). Feb. 27.

DEPARTMENT OF SUPPLY.
Universal Testing Machine and Equipment. Feb. 27.

**DEPARTMENT OF WORKS
AND HOUSING.**

Bedside Rugs. Feb. 27.
Diesel Alternator Sets, 40 KW and 50 KW, Supply and Installation. Feb. 27.

Pre-assembled Wiring Units (500), for Prefabricated Houses, Canberra. March 6.

Bain Maries and Hot Presses (2), for Flinders. Feb. 27.

Set of Duplex Dry Basin Type Sewage Ejector Pump, for Dandenong. Feb. 27.

Sprinkler and Fire Alarm System, Automatic, for P.M.G. Carpenters' Workshop, at Adelaide. March 6.

Switchgear—11 K.V. for Power Station, Canberra. Mar. 13.

1st July, 1951, to 30th June, 1952.
Closes Feb. 28.

Insulators, Cylindrical, Pedestal or Post Type, for 66-KV Outdoor Circuits (List CE-10,062). Feb. 28.

Locomotive Boilers, C.56/35 (25), Working Pressure, 200 lbs. per sq. in. (Spec. 12217). Extended to Feb. 28.

Shaping Machine, 24 in. stroke, heavy duty, with motor and drive (CE-10108). Feb. 27.

Steam Pipes and Headers for Lake Macquarie Power Station (Spec. 1280). Extended to March 7.

Supervisory Control Equipment, for Western Line Electrification (Spec. 1283). April 11.

Switchgear, Compound - filled, 11,000 Volt., for Martin Place Sub-station (Spec. 1285). March 28.

Tools—Axes, Hammers, Vices, etc. (Sch. 5); Shovels, Forks and Spades (Sch. 5a); Twist Drills (Sch. 15); Files (Sch. 16); Heavy Chemicals (Sch. 46a); Firebricks and Clay, for Locomotives and Workshops (Sch. 53); Firebricks, for Power Stations (Sch. 53a), Annual supply from 1st July, 1951, to 30th June, 1952. Closes Feb. 28.

Waste Making Machine, suitable for Treating Washed Cotton Waste (CE-10,010). Feb. 27.

DEPARTMENT OF PUBLIC WORKS.

Cafe Unit; Sink Heater; Multi-point Heaters (all gas heated). March 7.

Cold Water Pumping Plant. March 7.

Electrically - driven Sewage Pumping Plant, for Hay Sewerage Augmentation (Spec. 45-50/51). March 19.

Heating and Domestic Hot-water Systems, for Berrima District Hospital. Feb. 26.

Overhead Travelling Crane, (11 ton). Feb. 28.

Photo-Electric Control Relays. March 14.

Recirculating Pump, Electrically Driven. March 7.

Septic Tank Effluent Pump. March 7.

Steam Raising Equipment, Stack and Auxiliaries, for Cooma District Hospital. Feb. 26.

Storage Cabinet, Ice Cream. March 7.

Water Softener. Feb. 28.

(Turn to page 83.)

STATES

NEW SOUTH WALES

GOVERNMENT RAILWAYS DEPARTMENT.

Centre Lathes, Centre Height 31 in. to 9 in. Sliding, Surfacing and Screw-cutting Type (CE-10139). April 2.

Circuit Breakers — High-speed, 1500-volt, Complete with Control Equipment, for Western Main Line. (Spec. 1284). Supply of 165. Mar. 14.

Electric Concrete Mixers, 1 cub. yd. (CE-10155). April 3.

Electric Overhead Travelling Crane (100-ton), for Main Workshop at Strathfield. March 28.

Heavy Chemicals (Sch. 46A); Firebricks and Clay, for Locomotives and Workshops (Sch. 53); Firebricks, for Power Stations (Sch. 53A), Annual Supply from

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CURRENT TENDERS — contd.

DEPARTMENT OF SUPPLY.

Control Set, for Vortex Tunnels.
March 8.

Fork Lift Trucks (12). Feb. 27.
Fork Lift Trucks (3). March 6.
General Purpose Vessel (71 ft.).
Purchase of, from Garden Island.
March 1.

Locks and Keys. Feb. 27.
M.T. Wheel Equipment. Feb. 27.
Motor Launch, 37 ft. Purchase
of, from Rushcutters Bay. March
1.
Switchboards, for Power Plant.
Feb. 27.

METROPOLITAN WATER, SEWERAGE AND DRAINAGE BOARD.

Concrete Buckets (6) of rated
capacity at least 4 cub. yds. (P.T.
392). March 6.

Horizontal Spindle Centrifugal
Type Sewage Pumping Units, Elec-
trically Driven (2). (Contract
2973). April 10.

M. S. Plates—approx. 530 tons
and 25 tons of Structural Steel
Sections (Job 2465). Extended to
March 6.

Pneumatic Rock Picks (21),
Pneumatic Chipping Hammers
(7), Pneumatic Spaders (10),
Second-hand Condition. Purchase
of (Plant Tender 382). Feb. 27.

STATE CONTRACTS CONTROL BOARD.

Draftsmen's and Surveyor's
Instruments. Feb. 27.
Electric Cables, Wire and Flex,
Radio Parts. Feb. 28.
Induction Regulator. March 2.

SYDNEY COUNTY COUNCIL.

Aerial Service Cable during
period 1st July, 1951, to 30th June,
1952 (Spec. 1510). March 15.

Base Exchange Raw Water
Softener, for Evaporator Plant,
Bunnerong "B" Power Station
(Spec. 1528). March 15.

Hard Drawn Bare Copper Cable
and Copper Wires during period
1st July, 1951, to 30th June, 1952.
March 15.

Mobile Testing Equipment, High-
voltage (Spec. 1524). April 19.

Overhead Transmission Line
(132,000 Volt.), Lugarno to Home-
bush (Spec. 1493). March 15.

Relays and Associated Equip-
ment, for Bushar Protection at
Homebush Sub-station (Spec.
1522). April 26.

Rubber Insulated Cables during
the period 1st July, 1951, to 30th
June, 1952 (Spec. 1509). March 15.

Switchboards, Low Voltage, and
Sub-station Service Panels, for
Sub-stations (Spec. 1515). March
8.

Transformer Winding Tempera-
ture Indicators (Spec. 1519). April
11.

Turbine Diaphragms, for Bun-
nerong "A" Power Station (Spec.
1529). March 15.

Turbine Blading, for Pyrmont
"A" Power Station (Spec. 1530).
March 15.

MISCELLANEOUS.

Air Compressor, capable of op-
erating one Jackhammer; Small
Tractor, about 8 to 15 H.P., fitted
with Dozer Blade; Four-berth
Caravans (2), for Shire of Aber-
crombie. March 5.

Light Crawler Tractor, with
Angle Dozer Equipment, for
Municipality of Lane Cove. March
8.

Metal-clad Switchgear, High
Tension, for Municipality of
Manly. April 23.

Transformer, 750 K.V.A., 33/11
K.V., three-phase, for Bega Valley
County Council. March 12.

VICTORIA

GOVERNMENT RAILWAYS DEPARTMENT.

Diesel Travelling Cranes, 10-ton
(Con. 58,665). March 7.
Electric Signal Lamps. March
7.

Front End Loader (Contract
58688). March 14.

Uniform Buttons, Linings, etc.;
Serge, Twill, etc.; Uniform Cloth-
ing; Khaki and Navy Blue Drill
Tunics; Antimony, Lead, etc.;
Brass Products; Copper Products;
Malleable Iron Castings; Carbon
Steel Castings; Steel Tyres; Auto-
matic Couplers and Parts; Friction
Draft Gears; Rolled Steel; Explos-
ives; Tin Plate; Brake Hose
Pipes; India-rubber Hose; Rubber
Belting; India-rubber Goods, var-
ious; Packing; Steel Rails and Fish
Plates; Enamelled Station Name-
plates; Westinghouse Brake Parts,
two years' supply from 1/7/51 to
30/6/53. Closes Feb. 28.

Steel Tool Boxes. Feb. 28.
Utility Truck, Road Motor (Con-
tract 58691). March 7.

DEPARTMENT OF SUPPLY.

Portable Ventilating Fans.
March 1.

(Turn to page 85.)

Precision Tool and Die Makers METAL STAMPERS

Manufacturers of BOOMAROO STEEL TOYS

ARTLAY MANUFACTURING COMPANY

BUTT STREET, SURRY HILLS, N.S.W.

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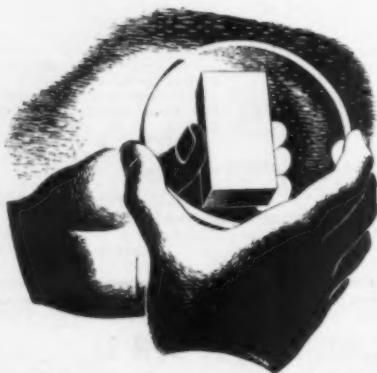
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CURRENT TENDERS — contd.

Testing Machine and Equipment. Feb. 27.

DEPARTMENT OF PUBLIC WORKS.

Air-conditioning Equipment, for Geelong. Feb. 27.
Briquette Hot-water Service, for Carlton. Feb. 27.

MELBOURNE AND METROPOLITAN BOARD OF WORKS.

Electric Motors, A.C. (8), up to 125 h.p. Feb. 27.
Water Meters, 2 in. (5000), with movable shutters. Feb. 27.

MELBOURNE AND METROPOLITAN TRAMWAYS BOARD.

Motor Spare Parts for Buses (Sch. Nos. 129 to 131). Feb. 26.

STATE ELECTRICITY COMMISSION.

Beam Bending and Straightening Machine (Spec. 50-51/248). Feb. 28.

Conveyors, Slot Bunker, to "B. & C." Boiler House Bunkers, Yallourn (Spec. 50-51/251). March 7.

Drilling Machines, for Kiewa (Spec. 50-51/252). March 7.

Fuses, Low Voltage (Spec. 50-51/253). March 21.

Galvanised Steelwork, for Transmission Lines (Spec. 50-51/256). March 7.

Horizontal Centrifugal Pumps, for Kiewa (Spec. 50-51/264). March 14.

Lathes, for Maintenance Workshops at Yallourn (Spec. 50-51/254). March 7.

Lathes, for Central Base Workshops (Spec. 50-51/266). March 21.

Pneumatic Power Hammers (Spec. 50-51/250). Feb. 28.

Porcelain Disc Insulators, for Transmission Lines (Spec. 50-51/257). April 4.

Rock Crushing and Screening Plant (Spec. 50-51/243). March 21.

Sawmill Plant, for Yallourn Area (Spec. 50-51/267). March 21.

Static Rectifier Plant, 11,000 volt. (Spec. 50-51/261). May 2.

Single Ram Hydraulic Press (Spec. 50-51/249). March 7.

Steel Cored Aluminium Conductor. Extended to March 14.

Time Switches (Spec. 50-51/233). March 21.

Turbo-Generating Set, Steam, 30,000 K.W. (Spec. 50-51/171). March 28.

STATE RIVERS AND WATER SUPPLY COMMISSION.

Trailers, 4-Wheeled, Pneumatic Tyred (2). Feb. 27.

MISCELLANEOUS.

Steel Lockers (100), Supply and installation at Municipal Baths, North Fitzroy; Motor Scythe, for City of Fitzroy. Feb. 26.

(Turn to page 86.)

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CURRENT TENDERS — contd.

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Potential Transformer Testing Set (one). Feb. 28.
Step Down Transformers (6), 7,500 kVA, 33,000 V. to 11,000 V. (Con. E.1/1951). April 20.
Underground Cable, Single Core, 11,000 V., P.I.L.C. (Contract. E-2/1951). April 6.

GOVERNMENT RAILWAYS DEPARTMENT.
Fabricated Structural Steel (1,300 tons). March 22.

STATE ELECTRICITY COMMISSION.
Power House Switchboards (Spec. 261). March 7.

MISCELLANEOUS.

M.S. Pipes and Fittings, 34 in. and 18 in., for City of Rockhampton. Feb. 28.

Steel Pipe Line and Associated Works for Tully Falls' Hydro Electric Scheme. July 22.

SOUTH AUSTRALIA

GOVERNMENT RAILWAYS DEPARTMENT.

Bogie Ore Waggon (100), 3 ft. 6 in. gauge. April 3.

HARBOURS BOARD.

Cast Steel Cutter and Spare Blades. March 15.
Spare Parts for Nos. 1 and 6 Dredgers. Feb. 28.

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WEST AUSTRALIA

GOVERNMENT TENDER BOARD.

Bogies, for Railway Wagons. April 5.
Coal Handling Plant, for E. Perth Power House. April 19.
Electrical Level Luffing Stiff-legged Derrick (738a). Mar. 1.
Gas Making and Ancillary Plant (Sch. 23A, 1951). Sept. 27.
Water Meters, 1 in. and 1 1/2 in. (Sch. 11A, 1951). March 15.

NEW ZEALAND

HYDRO ELECTRIC DEPARTMENT.

Auxiliary generating sets, 625 kVA, two (Con. 169). Pars. also Auckland, Christchurch, London, Paris, Washington, and Montreal. March 13.
Switchgear and steelwork, 110 kV. (Con. 167, 168). Specs. also Auckland, Christchurch. March 6.



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DEPARTMENT OF MAIN ROADS.

Roller Bearing Plummer Blocks. Noyes Bros. (Sydney) Ltd., £24/8/.

Auto Fans. Motor Traders Pty. Ltd., £20/2/.

Lifting Jacks. H. H. Hinds & Son, £33/10/.

Socket Spanners. Bennett & Wood Pty. Ltd., £12/3/7.

Hoop Iron. E. A. Harper & Sons Pty. Ltd., £88/13/.

Petrol Engine Operated Lawn Mower. Clyde Sales, £67/11/11.

Knife and Tool Grinder. McPherson's Ltd., £4/11/6.

Hand-operated Shearing Machine. McPherson's Ltd., £25.

Concrete Pipes. Humes Ltd., £299/0/4.

Cans. J. Gadsden Pty. Ltd., £5/13/10.

Protection Angles. Permasteel Pty. Ltd., £54.

Skimmer Shovel. Norton, Toothill & Co. Pty. Ltd., £7/160.

Sheet Metal Folding Machine. John Heine & Sons Pty. Ltd., £313.

Tippling Lorries. Hastings Deering Service Ltd., £2,474/15/.

Jackhammer Spares. Pneumatic Tool & Engineering Co. Pty. Ltd. (Part), £9/16/-; Whyte-Hall British Products Pty. Ltd. (Part), £50/14/-; Ingersoll-Rand (Aust.) Pty. Ltd. (Part), 3/6.

Ball Bearing Grinder. H. P. Gregory & Co. Ltd., £17/11/.

Concrete Pipes. Rocla Pipes Ltd., £74/6/8.

Jackhammer Parts. Whyte-Hall British Products Pty. Ltd. (Part), £47/5/-; Knox, Schlapp Pty. Ltd. (Part), £11/1/-.

Oil Pressure Gauges. R. G. Taylor & Co. (Part), £2/3/11; J. Blackwood & Son Pty. Ltd. (Part), £24/12/4.

Cocks-Horns, Jacks, Tyre Levers and Lamps. Brooklands Accessories Ltd. (Part), £67/16/-; Motor Traders Pty. Ltd. (Part), £10/17/3; Bennett & Wood Pty. Ltd. (Part), £12/5/8.

METROPOLITAN WATER, SEWERAGE AND DRAINAGE BOARD.

Sewage pumping units, elec. driven, two, £2,527. Thompsons (Castlemaine) Ltd.

Salt glazed ware pipe sewers, 35 p.c. above schedule rates. E. Howell.

Pressure reducing valve, £414. Ferrier, Dickinson & Weir Drysdale Ltd.

SYDNEY COUNTY COUNCIL.

Aluminium brass condenser tubes, 3/4.3d. per lb.; ferrule tubing, 3/33 per lb., £6,000. Knox Schlapp Pty. Ltd.

PUBLIC WORKS DEPARTMENT.

Plenum ventilating system, Penhurst home science school, £1,376. Air Design Engineering.

Exhaust ventilating systems, technical college, Granville, £1,181. Air Design Engineering.

Service reservoirs, i.e., two, £23,581. Constructions (Eng. & Industrial) Ltd.

Steam, domestic, h.w., central h.w. heating system, and modification to existing nurses' home, district hospital, Corowa, £7,051. F. R. Coyle.

Mech. engineering services, Peace Memorial Hospital, Manly, £12,130. F. R. Coyle.

Mech. services, District Hospital, Cobar, £6,480. A. H. Rippon.

Lifts, bed-passenger, elec. operated, three, District Hospital, Sutherland, £24,526. Otis Elevator Co. Pty. Ltd.

Cables, lead covered, 11,000 V.; ancillaries, Power Station, Tallawarra, £2,920. Lawrence & Hanson Electrical Pty. Ltd.

Lifts, passenger, two, Base Hospital, Lismore, £18,333. Otis Elevator Co. Pty. Ltd.

Leather sleeves, for sand pump dredges, sch. rates. Mangrove Belting Ltd.

Refrigeration plant, low pressure, Callan Park Mental Hospital, £1,235. Gordon Bros. Pty. Ltd.

VICTORIA

DEPARTMENT OF PUBLIC WORKS.

Weighbridge, with Indicator Dial, S. Stacey, £970.

Refrigerator, for Police Depot, Rickards Bros. Pty. Ltd., £400.

Electric Refrigerators, for Treatment Clinic, Mental Hospital, Rickards Bros. Pty. Ltd., £676.

Heat Storage Cooker, for Treatment Clinic. Levin & Co. Ltd., £497/6/9.

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Domestic Heat Storage Cooker and Stove, for Armadale Domestic Arts Training Centre. Levin & Co. Pty. Ltd., £303/18/1.

Flywire Doors, etc., for Teachers' College Hostel, Carlton. M. Harris & Son, £45/15/-.

Steam Oven Cooker, for Mental Hospital. Anderson & Ritchie Pty. Ltd., £198/10/-.

Cyclone Fence. Cyclone Co. of A. Ltd., £207.

Kitchen Equipment, for Larnook College. Brice Scale & Slicer Ltd., £701.

Refrigerators (three), for Armadale Training Centre. Rickards Bros. Pty. Ltd., £600.

Electric Pumps, for Cowarr. W. S. Cusack, £87/6/-.

Stainless Steel Sink. Griffiths Bros., £132.

Gas Toaster, for Ballarat Mental Hospital, £34/10/-.

Exhaust Fans, for Kew Mental Hospital. S. N. Lythgo, £110.

Central Heating, for Ballarat Girls' School. McLean & Boakes, £2,737/9/6.

Compressed Air Tank, for Govt. Printing Office. Orm Smith & Co., £39/18/9.

Rotary Clothes Hoist, for Wonthaggi. Easton & Smith, £46/12/-.

Electric Heater, for Montague. Mideco Pty. Ltd., £26.

Stove and Clothes Hoist, for Dudley. A. H. Shaw, £97.

MISCELLANEOUS.

Front end loader, £1,800. Vic. Industrial Sales & Service Pty. Ltd., for Rosedale Shire Council.

Late Open Tenders

COMMONWEALTH

DEPARTMENT OF WORKS AND HOUSING.

Cabinet Type Refrigerator, for Richmond (Quot. 324). March 8.
Flow Meters, for Carnarvon Whaling Station. Feb. 27.

Mechanical Ventilating Plant, for Central South Australia (Spec. 399). Feb. 27.

NEW SOUTH WALES

DEPARTMENT OF SUPPLY.

Cloud Searchlights (40). March 15.
Cotton Tape and Webbing. March 1.
Copper Wire and Brass Gauze. March 2.
Garage Equipment (Vices, Jack, Grinder, etc.). March 2.
Plastic Tubing, for Identity Discs. March 1.

DEPARTMENT OF PUBLIC WORKS.

Crawler Track Tractors (3), approx. 120 h.p. March 14.
Electric Drill, Portable; Drill Chuck. March 9.
Valve, one Foot, and Strainer. March 14.

MISCELLANEOUS.

Air Compressor, Trailer Type, of 100 cub. ft. per minute capacity; General-Purpose Light Motor Truck of 30 cwt.-2-ton capacity; Overhead Loader of 2 cub. yd. cap., approx. 40 h.p.; Power Chain Saw with 3 ft. Cutter Bar; Portable Winch, Single or Double Drum, with Clutch and Brake; Stationary Engine, Petrol or Kerosene, 2 h.p., for Shire of Dumaresq. March 15.
Crawler Tractor, approx. 55-60 h.p., fitted with Angle Dozer Equipment, for Shire of Namoi. March 9.
Crawler Tractors (2), complete with Dozer Equipment; Motor Graders (2); Tipping Trucks (6) — 5 cub. yd. Bodies, for Shire of Manning. March 23.

VICTORIA

GOVERNMENT RAILWAYS DEPARTMENT.

Needle Perforating Machine. April 18.
Pen Ruling Machine. April 18.
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LATE OPEN TENDERS—Contd.

QUEENSLAND

STATE ELECTRICITY COMMISSION.

Light and Power Points and Associated Equipment (Spec. 282). March 21.

Transformers (Spec. 259). March 28.

GOVERNMENT RAILWAYS DEPARTMENT.

Crawler Tractor; Scraper Scoop, Heavy Duty Ripper, Air Compressors, Concrete Mixers, Vibrators, Bumps and Barrows, Pneumatic Drills; Breakers and Picks, Rail Bender, Hydraulic Jacks. March 5.

WEST AUSTRALIA

GOVERNMENT TENDER BOARD.

Arc Welding Plant, d.c., 40-250 amp. March 8.

Generating Set, Diesel Driven. March 8.

Haasher-Washer and Hogger. March 1.

Mobile X-ray Unit. March 1.

Road Brooms, Power Driven. March 8.

Transformers, 2,000 kVA. March 22.

X-ray Equipment. March 8.

DEPARTMENT OF RAILWAYS—NEW SOUTH WALES.

TENDERS enclosed in sealed envelopes which must be endorsed "TENDER FOR . . .", addressed to the Commissioner for Railways, 19 York Street, Sydney, will be received on the date and time shown for the service specified. Tenders may be lodged in the Tender Box, Room 504A, 5th Floor, Railway House, 19 York Street, Sydney, or posted to that address.

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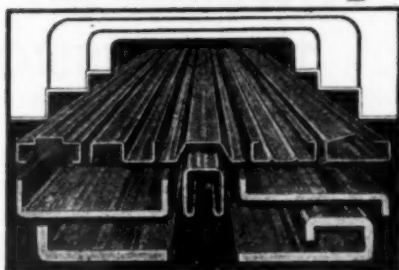
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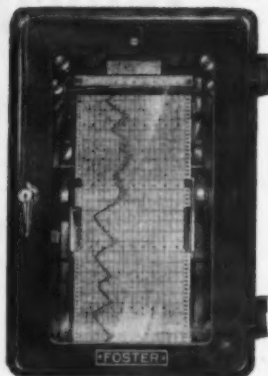
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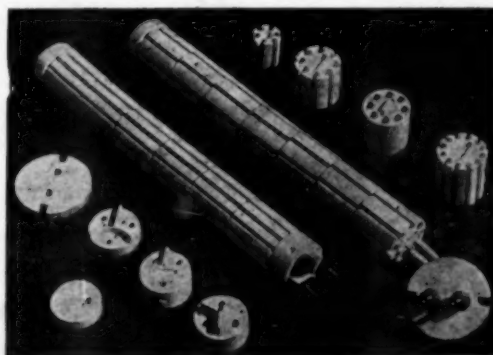
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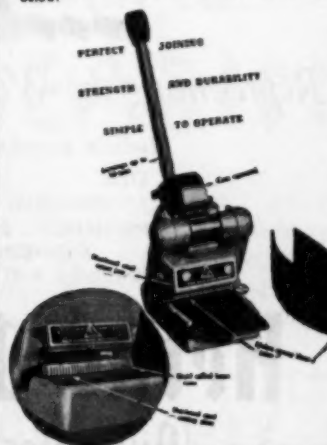
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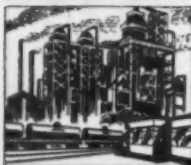
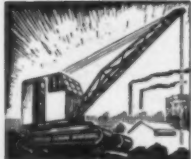


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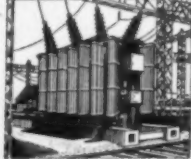
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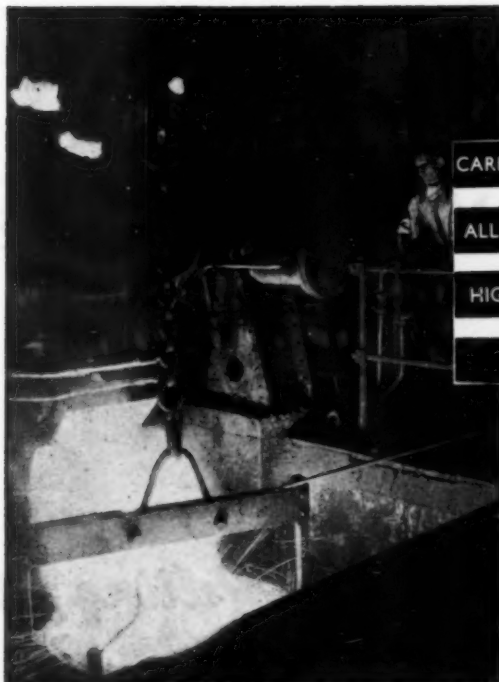
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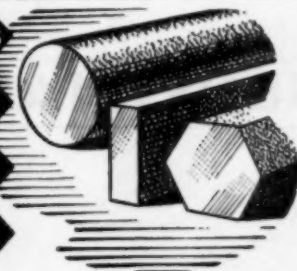
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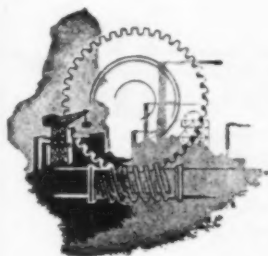
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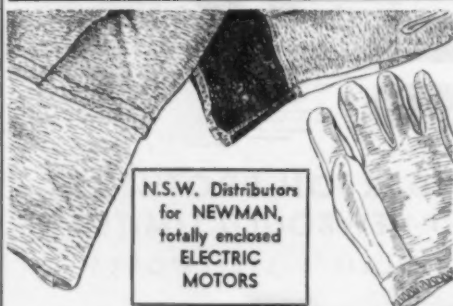
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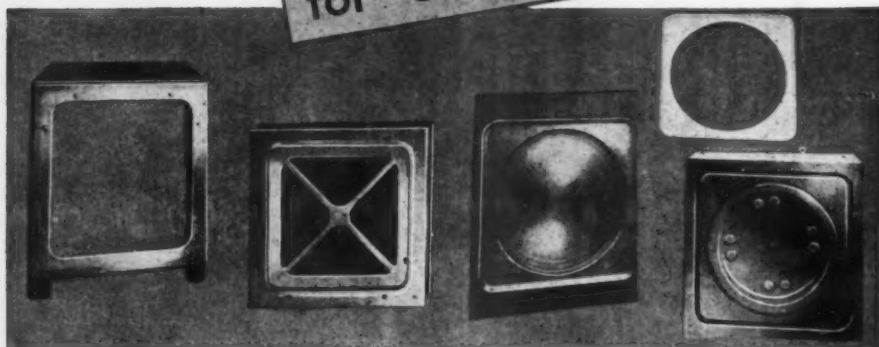
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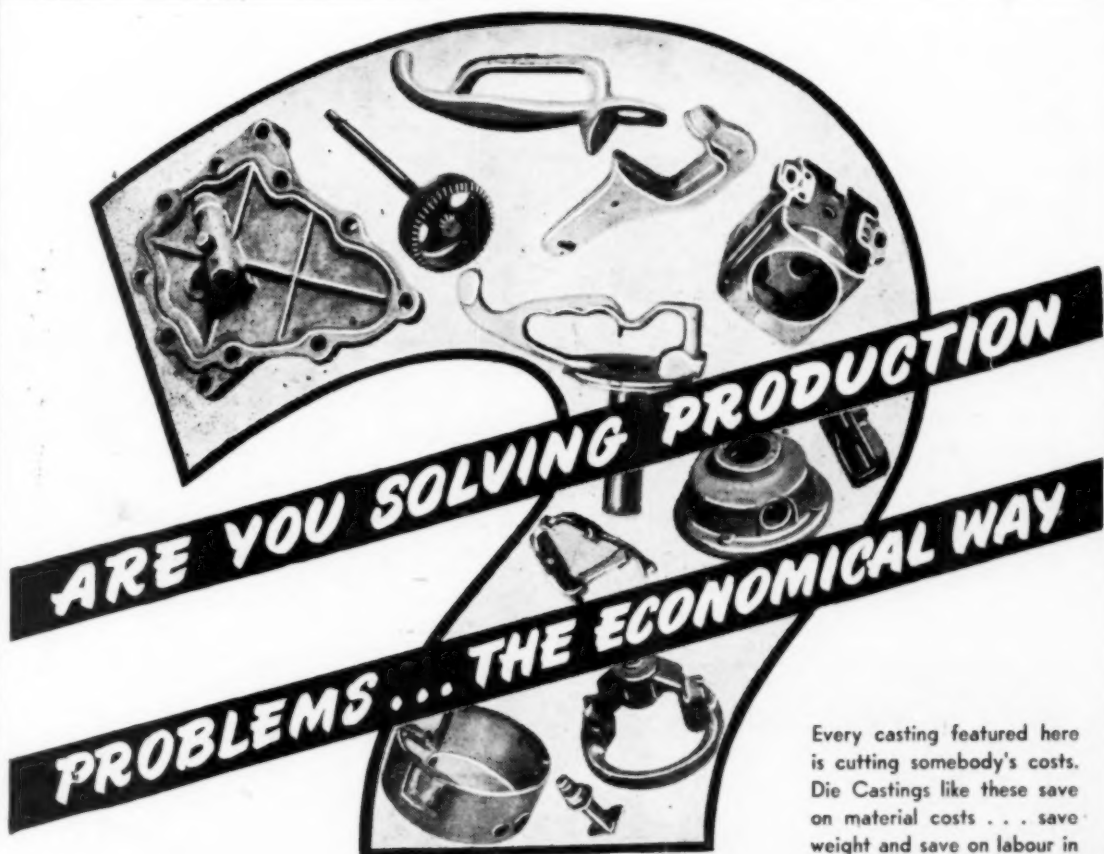
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